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CTE PROGRAM INDUSTRY SPECIFIC STANDARDS

High School Graduate Achievement Required for Entry-level Work

Career & Technical Education Board / Trust approved standards for student expectations related to work, training, and education preparedness.

RIDE

Contents

US Dept. of Labor (USDOL) Career Cluster: Arts / Audio Visual (AV) Technology / Communications	5
Career Field: Actor, Director or Theatre Educator	5
Career Field: Arts Education.....	8
Career Field: Craft and Fine Artist.....	10
Career Field: Dancer / Choreographer	12
Career Field: Designer	14
Career Field: Graphic Communications Technology: Print Manufacturing-Pre-Production.....	16
Career Field: Graphic Communications Technology: Print Manufacturing-Production	18
Career Field: Graphic Communications Technology: Design & Web-Print E-Commerce	20
Career Field: Graphic Communications Technology: Audio/Video.....	22
Career Field: Graphic Communications Technology: Advertising/Marketing	24
Career Field: Graphic Communications Technology: Sales/Support staff	26
Career Field: Media Communications.....	27
Career Field: Multimedia Artist.....	30
Career Field: Music Technologist	32
Career Field: Musician / Music Educator	36
Career Field: Sound Engineering Technician.....	39
Governor’s Workforce Board (GWB) Priority Sector: Business Management, Administration, Finance & Marketing	42
Career Field: Accounting Clerk, Entry-Level Banking	42
GWB Priority Sector: Construction Technology	44
Career Field: Junior Carpenter Helper	44
Career Field: Electrical Apprentice.....	45
Career Field: HVAC Apprentice	46
Career Field: Plumber Apprentice.....	47
Career Field: Welder – Entry-level	48
Career Field: Sheet Metal Apprentice.....	49
GWB Priority Sector: Education, Training & Human Services	50
Career Field: Education (Education, Child Care, Teacher Assistant).....	50
GWB Priority Sector: Environmental & Life Sciences - Bioscience	52
Career Field: Animal Science Veterinary Assistant / Lab Animal Caretaker	52
Career Field: Aquaculture / Agricultural and Food Science Technician.....	54
Career Field: Bioscience	56

Career Field: Plant Science – Landscaper & Groundskeeper	58
Career Field: Process Technician (Chemical Manufacturing, Research & Development)	60
GWB Priority Sector: Healthcare	63
Career Field: Certified Nursing Assistant (CNA)	63
Career Field: Certified Patient Care Technician (CPCT) <i>provisional license</i>	65
Career Field: Community Health Worker	66
Career Field: Dental Hygienist	68
Career Field: Emergency Medical Responder	70
Career Field: Pharmacy Technician	72
GWB Priority Sector: Hospitality & Tourism	74
Career Field: Culinary – Line Cook	74
Career Field: Restaurant Operations - Server	76
Career Field: Hotel Operations – Hotel Phone Operator	78
Career Field: Tourism - Amusement and Recreation Attendant	79
Career Field: Tourism – Tour Guide	80
Career Field: Culinary – Prep Cook	81
Career Field: Hotel Operations – Room Attendant	82
Career Field: Hotel Operations – Laundry Attendant	84
Career Field: Hotel Operations – Guest Room Service Agent	85
Career Field: Tourism – Travel Agent	87
Career Field: Culinary - Baker	88
GWB Priority Sector: Information Technology	89
Career Field: Entry-level Networking (Cisco Certified Network Associate – CCNA)	89
Career Field: Entry Level Software / Web Developer	90
Career Field: Information Technology Specialist	93
Career Field: Service Desk Specialist	95
US Dept. of Labor (USDOL) Career Cluster: Law, Public Safety & Government	97
Career Field: Law Enforcement	97
Career Field: Emergency Medical Responder*	98
Career Field: Legal Services, Paralegal	100
Career Field: Military	101
GWB Priority Sector: Manufacturing	103
Career Field: Entry-level Manufacturing	103
Career Field: Entry-level Manufacturing and above (Machinists and Tool & Die Makers)	104

Career Field: Entry-level and above Production Manufacturing Specialist	107
Career Field: Entry-level and above for any logistical function	108
Career Field: Entry-level and above in metalworking industry or function	110
GWB Priority Sector: Marine Trades	111
Career Field: Boat Building	111
Career Field: Composites	112
Career Field: Systems	113
GWB Priority Sector: Pre-Engineering Technology	114
Career Field: Technician	114
USDOL Career Cluster: Transportation, Distribution and Logistics	116
Career Field: Automotive Body Repair Technician	116
Career Field: Lube Technician	117
Career Field: Porter (Sales/Service)	118
Career Field: Shipping and Receiving Clerk	119
Career Field: Automotive Service Technician	120

US Dept. of Labor (USDOL) Career Cluster: Arts / Audio Visual (AV) Technology / Communications

(Not a RI Governor's Workforce Board Priority Sector)

Career Field: Actor, Director or Theatre Educator

Skills/ knowledge needed to be prepared for entry-level work:

Upon successful completion of a RIDE approved Actor/Theatre Educator Pathway, the candidate is expected to have a working knowledge of the following and be able to apply this knowledge in a variety of situations.

- Demonstrate employability skills related to a career in arts and communication
- Pursue career development skills to advance in arts and communication careers

Overall Career Information

What Actors, Directors, Theatre Educator (Post-Secondary) Specialists Do:

High School CTE Pathway Completion	Post-Secondary Two-Year Programs	Four-Year College and University Programs	Dual Degree and Postgraduate
<ul style="list-style-type: none"> • Announcer • Actor 	<p><u>Associate Degree programs include (examples):</u></p> <ul style="list-style-type: none"> • Associate of Arts in Theatre <p><u>Sample Job Titles</u></p> <ul style="list-style-type: none"> • Actor • Director • Musician (Performance) • Composer/Arranger • Church Musician • Accompanist 	<p><u>Bachelor of Arts or Theatre programs include (examples):</u></p> <ul style="list-style-type: none"> • Bachelor of Arts in Theatre • Bachelor of Arts in Theatre Education • Bachelor of Arts in Theatre Business Management <p><u>Sample Job Titles</u></p> <ul style="list-style-type: none"> • Actor (Performance) • Director • Playwright • Local (community and professional) • Theatre Educator (K-12) • Post-Secondary Theatre Educator • Theatre/Acting Entrepreneur 	<p><u>Theatre Arts or Theatre Arts Education and (examples):</u></p> <ul style="list-style-type: none"> • Directing • Medicine • Law • History • Anthropology <p><u>Sample Job Titles</u></p> <ul style="list-style-type: none"> • Director • Acting Therapist • Copyright Lawyer • Theatre Historian • Corporate trainer

Job Outlook:

According to the U.S. Bureau of Labor Statistics the expected growth from 2016 to 2024 is:

Actors	7,400 new jobs	(12% growth- faster than average)
Producer and Directors	16, 500 new jobs	(12% growth- faster than average)
Musicians and Singers	6,000 new jobs	(3% growth)
Post-Secondary Teachers	177,000 new jobs	(13% growth- faster than average)
High School Teachers	55,900 new jobs	(6% growth)
Middle School Teachers	36,800 new jobs	(6% growth)
Kindergarten and Elementary School Teachers	87,800 new jobs	(6% growth)

Pay:

According to the U.S. Bureau of Labor Statistics the median pay in 2016 was:

Actors	\$22.30 per hour	-
Producers and Directors	-	(\$70,950 per year)
Music Directors and Composers	\$25.14 per hour	(\$50,100 per year)
Musicians and Singers	\$25.14 per hour	-
Post-Secondary Teachers	-	(\$75,430 per year)
High School Teachers	-	(\$58,030 per year)
Middle School Teachers	-	(\$56,720 per year)
Kindergarten and Elementary School Teachers	-	(\$55,490 per year)

How to Become an Actor, Director or Theatre Educator in Rhode Island

Rhode Island CTE Program Requirements:

Each column MUST be met to satisfy the requirements of the Rhode Island CTE ACTOR, DIRECTOR or THEATRE EDUCATOR Standard.

Academic Requirements		Safety Training		Mandatory Credential(s) Earned		Work-Based Experience + Career Readiness Skills
Three full years of core theatre arts coursework + Recommended Coursework in: Speech Greek and Roman History Foreign Languages (Italian, French, German preferred) Recommended extra-curricular activities: Internship with partnering theatre Participation in performing arts productions.	+	OSHA 10 or an equivalent	+	Concurrent enrollment in Theatre Course with a postsecondary partner or National Occupational Competency Testing Institute (NOCTI) Exam	+	This standard adopts the work-based learning standards as developed and approved by the RI Governor's Workforce Board.

Expected Industry Credential(s) and/or Certificate(s) granted upon successful completion of the CTE Program (if applicable):

High school students interested in becoming an actor or theatre educator should enroll in a minimum of three and preferably four years of a core curriculum, both artistic and technical theatre courses, small and large company stage performances, artistic small and large company performances, stage-performance class (theatre company, acting, stage craft, speech). Individuals in this pathway must also successfully complete the Theatre Performance/Theatre Education college courses in an approved (EEP) Early Enrollment Program or pass the National Occupational Competency Testing Institute (NOCTI) exam.

USDOL Career Cluster: Arts / Audio Visual (AV) Technology / Communications

(Not a RI Governor's Workforce Board Priority Sector)

Career Field: Arts Education

Overall Career Information

This standard prepares students to graduate from high school prepared to enter a career in Arts, A/V Technology & Communications program at the post-secondary level, and to be 'job ready' in jobs such as Museum and Gallery Directors, Curators, Educators or Therapists.

Skills/ knowledge needed to be prepared for entry-level work:

Upon completion of the Visual Arts Pathway the candidate is expected to demonstrate their skill and talent through a substantial portfolio of work, exhibit creativity through unique visual problem solving, display their work through traditional methods and a web- portfolio, display manual dexterity, possess customer service/interpersonal skills, and utilize a variety of materials such as pencil, charcoal, collage, paint and printmaking.

Students interested in pursuing these careers specifically should be prepared for a highly competitive environment. A strong overall GPA and attention to detail are beneficial. Students may also consider courses in child development, psychology, and/or art history.

Overall Career Information

Pay:

Prior experience gained through an internship or by volunteering in archives or museums is helpful in getting a position as an archivist, curator, museum technician, or conservator.

Entry Level: <u>Sample Job Title/ Median Annual Wage</u>	Two - Year Programs: <u>Sample Job Title/ Median Annual Wage</u>	Four Year Programs: <u>Sample Job Title/ Median Annual Wage</u>
Gallery Assistant \$34,131		Art Directors \$89,820
Art Gallery Security Guard \$34,557	Junior Art Director \$43,232	Art Historians/Archivists \$47,230
Art Framer \$34,636		Museum/Gallery Curator \$50,459
		Museum Education Director \$36,048
		Visual Arts Educator \$43,360
		Art Therapist \$55,900

Job Outlook:

Overall employment of archivists, curators, museum technicians, and conservators is projected to grow 13 percent from 2016 to 2026. Job growth for elementary teachers and high school teachers over the decade from 2014 to 2024 is projected at 6%. www.bls.gov

*How to Become a Arts Educator in Rhode Island***Rhode Island CTE Program Requirements:**

Requirements are summarized in the following table. Each column MUST be met to satisfy the requirements of the Rhode Island CTE Arts, A/V Technology & Communications.

Academic Requirements	+	Mandatory Credential (s) Earned <u>One or more of the following:</u>	+	Work-Based Experience (s) + Career Readiness Skills
Three- Four consecutive years of Visual Arts Courses as aligned by individual district pathways. <u>Recommended coursework:</u> <ul style="list-style-type: none"> • Art History • AP Art History 	+	One or more of the following: <ul style="list-style-type: none"> • Concurrent/ Dual Enrollment College Level Course (EEP) • Advanced Placement in 2-D Design or Drawing • Comprehensive Visual Arts Portfolio with Artist Statement: Includes a minimum of 15 pieces • National Occupational Competency Testing Institute (NOCTI) 	+	This standard adopts the work-based learning standards as developed and approved by the RI Governor's Workforce Board Visual Arts work-based learning experience(s) and/or related mentoring program + Career Readiness Skills Component, (I.E. Naviance)

Expected Industry Credential(s) and/or Certificate(s) granted upon successful completion of the CTE Program (if applicable):

NOCTI, Adobe Certified Associate

USDOL Career Cluster: Arts / Audio Visual (AV) Technology / Communications

(Not a RI Governor's Workforce Board Priority Sector)

Career Field: Craft and Fine Artist

Skills/ knowledge needed to be prepared for entry-level work:

Upon completion of the Visual Arts Pathway the candidate is expected to demonstrate their skill and talent through a substantial portfolio of work, exhibit creativity through unique visual problem solving, display their work through traditional methods and a web- portfolio, display manual dexterity, possess customer service/interpersonal skills, and utilize a variety of materials such as pencil, charcoal, collage, paint and printmaking.

Pay: (Post-Secondary Program) - The median annual wage and fine artists was \$48,780 in May 2016, with an annual growth rate of 6%. (BLS.gov)

Entry Level: Sample Job Title/ Median Annual Wage		Two - Year Programs: Sample Job Title/ Median Annual Wage		Four Year Programs: Sample Job Title/ Median Annual Wage	
Artist's Assistant	\$30,180	Junior Art Director	\$43,232	Art Directors	\$89,820
Floral Designer	\$31,360	Set Designer	\$41,500	Industrial Designer	\$67,790
Gallery Assistant	\$34,131			Illustrator	\$44,613
Tattoo Artist	\$30,758			Jewelry/Metal Worker	\$38,200
				Woodworker	\$30,180
				Fashion Designer	\$65,170
				Museum/Gallery Curator	\$47,230

Job Outlook: Overall, employment of craft and fine artists is projected to grow 6 percent from 2016-2026.

How to Become a Craft / Fine Artist in Rhode Island

Rhode Island CTE Program Requirements:

Requirements are summarized in the following table. Each column **MUST** be met to satisfy the requirements of the Rhode Island CTE Arts, A/V Technology & Communications.

Academic Requirements	+	Mandatory Credential (s) Earned <u>One or more of the following:</u>	+	Work-Based Experience (s) + Career Readiness Skills
<p>Three- Four consecutive years of Visual Arts Courses as aligned by individual district pathways.</p> <p><u>Recommended coursework:</u></p> <p>Art History</p> <p>AP Art History</p>	+	<p>One or more of the following:</p> <p>Concurrent/ Dual Enrollment College Level Course (EEP);</p> <p>Advanced Placement in 2-D Design or Drawing;</p> <p>National Occupational Competency Testing Institute (NOCTI);</p> <p>Comprehensive Visual Arts Portfolio with Artist Statement: Includes a minimum of 15 pieces;</p> <p>Adobe Certification</p>	+	<p>This standard adopts the work-based learning standards as developed and approved by the RI Governor’s Workforce Board.</p> <p>Visual Arts worked based learning experiences(s)</p> <p>and/ or</p> <p>related mentoring program</p> <p>+</p> <p>Career Readiness Skills Component</p>

Expected Industry Credential(s) and/or Certificate(s) granted upon successful completion of the CTE Program (if applicable): NOCTI, Adobe Certified Associate

USDOL Career Cluster: Arts / Audio Visual (AV) Technology / Communications

(Not a RI Governor's Workforce Board Priority Sector)

Career Field: Dancer / Choreographer

Overall Career Information

This standard is for a high school graduate who is prepared to enter a BFA program at the secondary level and/or be "job ready" at the assistant/apprenticeship level in private sector instruction or arts production/management.

Skills/ knowledge needed to be prepared for entry-level work:

In the Performing Arts, the individual artist directly creates/performs the work of art or entertainment and are the medium of creative expression. Upon successful completion of a RIDE Approved Dance Pathway, the candidate is expected to have a working knowledge of the following and be able to apply this knowledge in a variety of situations:

- Meet the minimum of Proficient Level in the National Core Arts Standards for Dance
<http://www.nationalartsstandards.org>
- Meet 21st Century Core Competencies
- Demonstrate employability skills related to a career in Arts and Communication careers

Overall Career Information

Pay:

Dancers:	\$19.89/hour
Choreographers:	\$24.28/hour or \$50,500/year
Entertainers and performers, sports and related workers:	\$19.65/hour (median 2016)
Assistant Dance Instructor:	Tuition exchange
Teaching Artist:	\$35/hour
Postsecondary Teachers:	\$75,430/year (median for tenured professors 2016) MA/MFA required
Public Education Dance Teacher:	(\$ 41,704 step one) depending on longevity and level of pursuit of higher education degrees (Masters and Doctorate) BFA minimum
Private Sector - Studio owner:	\$40,600/year; Teachers: \$30/hour average
Producers and Directors:	\$70,950 (median 2016) Bachelor's Degree

Similar Occupations: (List of similar or related occupations)

- Dance photographer/videographer
- Dance Medicine: Kinesiology, dance therapy, Physical Therapy, athletic trainer, Massage
- Somatic trainer: (e.g., Feldenkrais, Alexander, Yoga)
- Dance Writer: (e.g., dance critique, dance history, dance notation)
- Stage Management: production

*How to Become a Dancer / Choreographer in Rhode Island***Rhode Island CTE Program Requirements:**

ACADEMIC REQUIREMENTS	+	MANDATORY CREDENTIAL(S) EARNED	+	WORK-BASED EXPERIENCE(S) + CAREER READINESS SKILLS
College Preparatory Courses for RI High School Diploma Three to four consecutive years of spiraling Dance Curriculum (meeting NCAS Proficient Level – Minimum): technique, choreography and composition, dance history, anatomy (kinesiology), injury prevention, dance analysis and critique, pedagogy, production; and could include arts management (back and front of house), costume (set, lighting) design and construction/implementation. 3 Pre-AP Arts Dance Units (College Board)	+	Dance Education Assistant Certification from RI Dance Alliance Inc. (portfolio review). AP Capstone including AP Seminar and AP Research (College Board) Optional: National Honor Society for Dance Academics (NDEO)	+	Internship with industry focus (e.g., assistant in private sector; dance company intern/apprentice in performance or arts management, marketing, and/or production; mentorship with choreographer or arts organization manager). This standard adopts the work-based learning standards as developed and approved by the RI Governor's Workforce Board.

Expected Industry Credential(s) and/or Certificate(s) granted upon successful completion of the CTE Program (if applicable):

Dance Education Assistant Certification, including portfolio review, sponsored by Rhode Island Dance Alliance, Inc.; Supplemental College Level Courses (credits towards college); and AP Seminar and AP Research - AP Capstone (College Board).

CREDENTIAL CERTIFYING ORGANIZATIONS: Rhode Island Dance Alliance, Inc. [Portfolio Review]; AP Capstone - AP Seminar and AP Research (College Board).

TESTING METHODOLOGY FOR CREDENTIAL: Portfolio review

USDOL Career Cluster: Arts / Audio Visual (AV) Technology / Communications

(Not a RI Governor's Workforce Board Priority Sector)

Career Field: Designer

Overall Career Information

This standard prepares students to graduate from high school prepared to enter a career in Arts, A/V Technology & Communications program at the post-secondary level, and to be 'job ready' as a designer.

Skills/ knowledge needed to be prepared for entry-level work:

Virtually all entry-level positions for industrial designers require a bachelor's degree in industrial design, engineering, architecture or a similar field. Prospective industrial designers may be required to possess basic art and design skills before entering into a bachelor's degree program.

An associate's degree or higher is typically required to become a graphic designer, according to the U.S. Bureau of Labor Statistics (BLS). Many employers may require a bachelor's degree or significant work experience in addition to an associate's degree.

The Visual Arts Pathway prepares students with the foundational design and art experiences to gain acceptance into BFA programs. Students will have the opportunity to earn an Adobe certificate. Students will have the opportunity to earn credit through the College Board, or concurrent courses, or dual enrollment. Students will create a portfolio of 15-20 pieces to show mastery of foundation art making techniques and explore a chosen concept in depth.

Pay:

Entry Level: <u>Sample Job Title/ Median Annual Wage</u>	Two - Year Programs: <u>Sample Job Title/ Median Annual Wage</u>	Four Year Programs: <u>Sample Job Title/ Median Annual Wage</u>
Floral Designer \$31,360	Web Developer \$66,130	Graphic Designers \$46,900
Graphic Design Assistant \$18,000	Drafters \$53,480	Industrial Designer \$67,130
Industrial Design Assistant \$18,000	Desktop Publisher \$41,090	Architect \$76,930
Architectural Assistant \$18,000		Interior Designer

Job Outlook:

Employment of graphic and industrial designers is projected to grow 4 percent from 2016 to 2026.

How to Become a Visual Arts Designer in Rhode Island

Rhode Island CTE Program Requirements and Expected Industry Credential(s) and/or Certificate(s) granted upon successful completion of the CTE Program (if applicable):

RIDE – May 7, 2018

Each column MUST be met to satisfy the requirements of the Rhode Island CTE Arts, A/V Technology & Communications.

Academic Requirements	+	Mandatory Credential (s) Earned	+	Work-Based Experience (s) & Career Readiness Skills
<p>Three- Four consecutive years of Visual Arts Courses as aligned by individual district pathways.</p> <p><u>Recommended coursework:</u></p> <p>Art History</p> <p>AP Art History</p>	+	<p>One or more of the following:</p> <ul style="list-style-type: none"> • Concurrent/ Dual Enrollment College Level Course (EEP) • Advanced Placement in 2-D Design or Drawing • National Occupational Competency Testing Institute (NOCTI) • Comprehensive Visual Arts Portfolio with Artist Statement: Includes a minimum of 15 pieces • Adobe Certification 	+	<p>This standard adopts the work-based learning standards as developed and approved by the RI Governor’s Workforce Board.</p> <p>Visual Arts worked based learning experience(s)</p> <p>and/ or</p> <p>related mentoring program</p> <p>+</p> <p>Career Readiness Skills Component</p>

USDOL Career Cluster: Arts / Audio Visual (AV) Technology / Communications

(Not a RI Governor's Workforce Board Priority Sector)

Career Field: Graphic Communications Technology: Print Manufacturing-Pre-Production

Skills/knowledge needed to be prepared for entry-level work:

Upon completion of this high school Graphic Communications Technology training program, the candidate is expected to know and be able to:

Duties (may include, but not limited to):

Taking orders from customers. Troubleshooting problems. Determining prepress requirements by reviewing work orders. Reformatting inside pages based on clients' requirements. Creating and importing graphics; converting, scanning, and enhancing documents, illustrations, and photographs, into digital images. Maintaining quality results by editing layouts including spelling, grammar, punctuation, reproduction, clarity, and consistency; adhering to prepress standards. Obtaining layout approval by submitting completed design and layout; reviewing and implementing changes. Initiating printing production by transmitting files. Addressing management or customer concerns. Computer skills.

Required Curriculum: GAERF-PrintED, administered by the Graphic Arts Education and Research Foundation (GAERF®) is a national accreditation program, based on industry standards, appropriate for secondary and post-secondary schools offering graphic communications curricula. Adobe Visual Design forms the foundations of Design and Print Production is a yearlong, project-based curriculum that develops career and communication skills in graphic design, illustration and print and digital media production, using Adobe tools. Visual Design develops four key skill areas: Project management and collaboration, Design, Research and communication, Professional digital photography, illustration, and page layout using Adobe tools. PLTW Computer Science courses are part of the AP + PLTW computer science pathway. The program's interdisciplinary courses engage students in compelling, real-world challenges. As students work together to design solutions, they learn computational thinking – not just how to code – and become better thinkers and communicators.

Expected industry credential(s) and /or certificate(s) granted upon successful completion of the program (if applicable): Typically hold a certificate (GAERF-PrintED, Adobe, Skillconnect, NOCTI, AutoDesk, specialized proprietary software) or diploma in graphics operations (Xerox), design or printing technology. An alternative is an associate degree in graphic arts and imaging technology or printing and prepress technology.

Prerequisites for acquiring credential or certificate:

Study graphic communications, computers, commercial printing processes, math, lithography, and safety procedures.

Benefits of this level of achievement in the job market:

More job opportunities, an increased pay scale, job security, and increased subject matter expertise. High school and postsecondary CTE programs that lead to associate degrees, certificates, and industry-recognized credentials can help young people find skilled employment and give them the option of returning to school for a higher degree. CTE programs that earn industry certification receive high-quality curricula and professional development opportunities for their instructors. In addition, employers benefit from a more highly skilled workforce with certifiable skills. <http://www.nrccte.org/core-issues/industry-recognized-credentials> Descriptive analyses document the extent of general education CTE course taking by students with LD and their engagement in a

concentrated program of occupationally specific general education CTE, a level of course taking early research has linked to improved post-high school employment outcomes.

Job Outlook: Employment of photographers is projected to grow 3 percent from 2014 to 2024, slower than the average for all occupations. Salaried jobs may be more difficult to find as more companies contract with freelancers rather than hire their own photographers. Prepress technicians face a challenging career outlook because the U.S. Bureau of Labor Statistics (BLS) expects to see a decline in jobs from 2014-2024, due in large part to technological developments that insert more automation into the printing process.

Pay: The most recent Rhode Island Labor Market Information for this profession identified as the production occupations dates from May 2015 and the entry-level wage is \$11-\$18/hr. Yearly wages are higher for entry-level wages due to overtime. The median annual pay rate \$34,080 + in 2015.

USDOL Career Cluster: Arts / Audio Visual (AV) Technology / Communications

(Not a RI Governor's Workforce Board Priority Sector)

Career Field: Graphic Communications Technology: Print Manufacturing-Production

Skills/knowledge needed to be prepared for entry-level work:

Upon completion of this high school Graphic Communications Technology training program, the candidate is expected to know and be able to:

Duties: Taking orders from customers. Troubleshooting problems. Determining requirements by reviewing work orders. Reformatting inside pages based on clients' requirements. Operate various kinds of machinery making ground-level training on each piece of equipment important. Computer skills.

Required Curriculum: GAERF-PrintED, administered by the Graphic Arts Education and Research Foundation (GAERF®) is a national accreditation program, based on industry standards, appropriate for secondary and post-secondary schools offering graphic communications curricula. Adobe Visual Design forms the foundations of Design and Print Production is a yearlong, project-based curriculum that develops career and communication skills in graphic design, illustration and print and digital media production, using Adobe tools. Visual Design develops four key skill areas: Project management and collaboration, Design, Research and communication, Professional digital photography, illustration, and page layout using Adobe tools. PLTW Computer Science courses are part of the AP + PLTW computer science pathway. The program's interdisciplinary courses engage students in compelling, real-world challenges. As students work together to design solutions, they learn computational thinking – not just how to code – and become better thinkers and communicators.

Expected industry credential(s) and /or certificate(s) granted upon successful completion of the program (if applicable): Typically hold a certificate (GAERF-PrintED, Adobe, Skillconnect, NOCTI, AutoDesk, specialized proprietary software) or diploma in graphics operations (Xerox), design or printing technology. An alternative is an associate degree in graphic arts and imaging technology or printing and prepress technology.

Prerequisites for acquiring credential or certificate: Study graphic communications, computers, commercial printing processes, math, lithography, and safety procedures.

Benefits of this level of achievement in the job market: More job opportunities, an increased pay scale, job security, and increased subject matter expertise. High school and postsecondary CTE programs that lead to associate degrees, certificates, and industry-recognized credentials can help young people find skilled employment and give them the option of returning to school for a higher degree. CTE programs that earn industry certification receive high-quality curricula and professional development opportunities for their instructors. In addition, employers benefit from a more highly skilled workforce with certifiable skills. <http://www.nrccte.org/core-issues/industry-recognized-credentials> Descriptive analyses document the extent of general education CTE course taking by students with LD and their engagement in a concentrated program of occupationally specific general education CTE, a level of course taking early research has linked to improved post-high school employment outcomes. <http://ldx.sagepub.com/>

Bureau of Labor Statistics: Job Outlook - Employment of print binding and finishing workers is projected to decline 4 percent from 2012 to 2022.

Pay: The most recent Rhode Island Labor Market Information for this profession identified as the production occupations dates from May 2015 and the entry-level wage is \$13/hr. for bindery and finishing and \$14/hr. for press. Yearly wages are higher for entry-level wages due to overtime. The median annual pay rate \$34,080 + in 2015.

USDOL Career Cluster: Arts / Audio Visual (AV) Technology / Communications

(Not a RI Governor's Workforce Board Priority Sector)

Career Field: Graphic Communications Technology: Design & Web-Print E-Commerce

Skills/knowledge needed to be prepared for entry-level work:

Upon completion of this high school Graphic Communications Technology training program, the candidate is expected to know and be able to:

Duties:

Cultivate a solid body of work. Take the design "brief" to record requirements and client's needs. Schedule project implementation and define budget constraints. Work with a wide range of media and use graphic design software. Think creatively and develop new design concepts, graphics and layouts. Prepare rough drafts and present your ideas. Amend final designs to clients' comments and gain full approval. Work as part of a team with copywriters, designers, stylists, executives etc.

Required Curriculum: PrintED, administered by the Graphic Arts Education and Research Foundation (GAERF®) is a national accreditation program, based on industry standards, appropriate for secondary and postsecondary schools offering graphic communications curricula. Adobe Visual Design forms the foundations of Design and Print Production is a yearlong, project-based curriculum that develops career and communication skills in graphic design, illustration and print and digital media production, using Adobe tools. Visual Design develops four key skill areas: Project management and collaboration, Design, Research and communication, Professional digital photography, illustration, and page layout using Adobe tools. PLTW Computer Science courses are part of the AP + PLTW computer science pathway. The program's interdisciplinary courses engage students in compelling, real-world challenges. As students work together to design solutions, they learn computational thinking – not just how to code – and become better thinkers and communicators.

Expected industry credential(s) and /or certificate(s) granted upon successful completion of the program (if applicable): Typically hold a certificate (GAERF-PrintED, Adobe, Skillconnect, NOCTI, AutoDesk, specialized proprietary software) or diploma in graphics operations (Xerox), design or printing technology. An alternative is an associate degree in graphic arts and imaging technology or printing and prepress technology.

Prerequisites for acquiring credential or certificate:

Study graphic communications technology and or Adobe software, computers, commercial printing processes, math, lithography, and safety procedures.

Benefits of this level of achievement in the job market:

More job opportunities, an increased pay scale, job security, and increased subject matter expertise. High school and postsecondary CTE programs that lead to associate degrees, certificates, and industry-recognized credentials can help young people find skilled employment and give them the option of returning to school for a higher degree. CTE programs that earn industry certification receive high-quality curricula and professional development opportunities for their instructors. And employers benefit from a more highly skilled workforce. Descriptive analyses document the extent of general education CTE course taking by students with LD and their engagement in a concentrated program of occupationally specific general education CTE, a level of course taking early research has linked to improved post-high school employment outcomes. <http://ldx.sagepub.com/content/early/2015/03/16/0022219415574774.abstract>

Bureau of Labor Statistics: Job Outlook:

The Bureau of Labor Statistics expects the employment of graphic designers to grow as much as 13 percent annually, due to the increased emphasis on online advertising and technology firms. Furthermore, with the expansion of mobile Internet and increased adoption of broadband Internet, employers are looking every day for innovative web designers who are able to take advantage of these technological advances. <http://www.collegesanddegrees.com/programs/web-design/job-profile>

Pay: The most recent Rhode Island Labor Market Information for this profession identified as the Graphic Designers Design & Web-Print ECommerce dates from May 2015 and the entry-level wage is \$19/hr. The median annual pay rate \$52,000 + in 2015.

USDOL Career Cluster: Arts / Audio Visual (AV) Technology / Communications

(Not a RI Governor's Workforce Board Priority Sector)

Career Field: Graphic Communications Technology: Audio/Video

Skills/knowledge needed to be prepared for entry-level work:

Upon completion of this high school Graphic Communications Technology training program, the candidate is expected to know and be able to:

Duties:

Set up and install equipment such as microphones, sound speakers, video screens, projectors, video monitors, recording equipment, connecting wires and cables, sound and mixing boards for events and functions such as concerts, sports events, meetings and conventions, presentations, and news conferences. Set up and operate audio/video equipment. Test and resolve equipment issues. Diagnose and correct media system problems. Mix sound inputs and feeds. Exceptional computer troubleshooting. Be familiar with Adobe type software programs, such as Dreamweaver, Flash, and InDesign. Maintain inventory of equipment.

Required Curriculum: PrintED, administered by the Graphic Arts Education and Research Foundation (GAERF®) is a national accreditation program, based on industry standards, appropriate for secondary and postsecondary schools offering graphic communications curricula. Adobe Visual Design forms the foundations of Design and Print Production is a yearlong, project-based curriculum that develops career and communication skills in graphic design, illustration and print and digital media production, using Adobe tools. Visual Design develops four key skill areas: Project management and collaboration, Design, Research and communication, Professional digital photography, illustration, and page layout using Adobe tools. PLTW Computer Science courses are part of the AP + PLTW computer science pathway. The program's interdisciplinary courses engage students in compelling, real-world challenges. As students work together to design solutions, they learn computational thinking – not just how to code – and become better thinkers and communicators.

Expected industry credential(s) and /or certificate(s) granted upon successful completion of the program (if applicable): Typically hold a certificate (GAERF-PrintED, Adobe, Skillconnect, NOCTI, Autodesk specialized proprietary software) or diploma in electronic prepress operations (Xerox) or printing prepress technology. An alternative is an associate degree in graphic arts and imaging technology or printing technology and college credit.

Prerequisites for acquiring credential or certificate:

Study graphic communications technology and or Adobe software, computers, math, lithography, and safety procedures.

Benefits of this level of achievement in the job market:

More job opportunities, an increased pay scale, job security, and increased subject matter expertise. High school and postsecondary CTE programs that lead to associate degrees, certificates, and industry-recognized credentials can help young people find skilled employment and give them the option of returning to school for a higher degree. CTE programs that earn industry certification receive high-quality curricula and professional development opportunities for their instructors. And employers benefit from a more highly skilled workforce with certifiable skills. <http://www.nrccte.org/core-issues/industry-recognized-credentials> Descriptive analyses document the extent of general education CTE course taking by students with LD and their engagement in a concentrated program of occupationally specific general education CTE, a level of course taking early research has linked to

improved post–high school employment outcomes. <http://ldx.sagepub.com/content/early/2015/03/16/0022219415574774.abstract>

Bureau of Labor Statistics (BLS): Job Outlook:

The BLS projected that employment in the sector would grow by about six percent from 2012-2022.

Pay: The most recent Rhode Island Labor Market Information for this profession identified as the Audio/Video technician's dates from May 2015 and the entry-level wage is \$17/hr. The median annual pay rate \$35,500 + in 2015.

USDOL Career Cluster: Arts / Audio Visual (AV) Technology / Communications

(Not a RI Governor's Workforce Board Priority Sector)

Career Field: Graphic Communications Technology: Advertising/Marketing

Skills/knowledge needed to be prepared for entry-level work:

Upon completion of this high school Graphic Communications Technology training program, the candidate is expected to know and be able to:

Duties

Initiate and oversee multiple product promotions for several key e-commerce channels across a variety of platforms, social media outlets and mailing lists to drive revenue and social proof. Research current ecommerce offerings, understand opportunities and constraints and develop recommendations based on unique business needs. Use data management to track and forecast sales data, as well as logging the statuses and success rates of promotional offerings. Correspond with customers and/or promotional participants resolve any new or outstanding discrepancies, as well as answering any general inquiries pertaining to past, present or future promotions. Coordinate with management and operations departments regarding quantity and timing of promotional initiatives. Additional day-to-day tasks may include: Creating copy for promotional emails, proactively researching new promotional outlets, creating accurate promotional discount codes across multiple storefronts, and coordinating with leadership to ensure revenue-building results.

Required Curriculum: PrintED, administered by the Graphic Arts Education and Research Foundation (GAERF®) is a national accreditation program, based on industry standards, appropriate for secondary and postsecondary schools offering graphic communications curricula. Adobe Visual Design forms the foundations of Design and Print Production is a yearlong, project-based curriculum that develops career and communication skills in graphic design, illustration and print and digital media production, using Adobe tools. Visual Design develops four key skill areas: Project management and collaboration, Design, Research and communication, Professional digital photography, illustration, and page layout using Adobe tools. PLTW Computer Science courses are part of the AP + PLTW computer science pathway. The program's interdisciplinary courses engage students in compelling, real-world challenges. As students work together to design solutions, they learn computational thinking – not just how to code – and become better thinkers and communicators.

Expected industry credential(s) and /or certificate(s) granted upon successful completion of the program (if applicable): Typically hold a certificate (GAERF-PrintED, Adobe, Skillconnect, NOCTI, Autodesk, specialized proprietary software) or diploma in electronic prepress operations (Xerox) or printing prepress technology. An alternative is an associate degree in graphic arts and imaging technology or printing technology.

Prerequisites for acquiring credential or certificate: Study graphic communications, computers, commercial printing processes, math, lithography, and safety procedures.

Benefits of this level of achievement in the job market: More job opportunities, an increased pay scale, job security, and increased subject matter expertise. High school and postsecondary CTE programs that lead to associate degrees, certificates, and industry-recognized credentials can help young people find skilled employment and give them the option of returning to school for a higher degree. CTE programs that earn industry certification receive high-quality curricula and professional development opportunities for their instructors. In addition, employers benefit from a more highly skilled workforce with certifiable skills. <http://www.nrccte.org/core-issues/industry-recognized-credentials> Descriptive analyses document the extent of

general education CTE course taking by students with LD and their engagement in a concentrated program of occupationally specific general education CTE, a level of course taking early research has linked to improved post-high school employment outcomes.

Bureau of Labor Statistics: Job Outlook: Employment of advertising, promotions, and marketing managers is projected to grow 9 percent from 2014 to 2024.

Pay: The most recent Rhode Island Labor Market Information for this profession identified as the Advertising/Marketing from May 2015 and the entry-level wage is \$13/hr. for an intern on Indeed.com. The median annual pay rate \$56,500 + in 2015.

USDOL Career Cluster: Arts / Audio Visual (AV) Technology / Communications

(Not a RI Governor's Workforce Board Priority Sector)

Career Field: Graphic Communications Technology: Sales/Support staff

Skills/knowledge needed to be prepared for entry-level work:

Upon completion of this high school Graphic Communications Technology training program, the candidate is expected to know and be able to:

Duties

Processing new sales leads. Managing the correspondence between the sales team and their client. Monitoring customer accounts. Providing data and reports to help the sales team. Keeping track of sales targets. Answering phone calls. Scheduling diaries.

Required Curriculum: PrintED, administered by the Graphic Arts Education and Research Foundation (GAERF®) is a national accreditation program, based on industry standards, appropriate for secondary and postsecondary schools offering graphic communications curricula. Adobe Visual Design forms the foundations of Design and Print Production is a yearlong, project-based curriculum that develops career and communication skills in graphic design, illustration and print and digital media production, using Adobe tools. Visual Design develops four key skill areas: Project management and collaboration, Design, Research and communication, Professional digital photography, illustration, and page layout using Adobe tools. PLTW Computer Science courses are part of the AP + PLTW computer science pathway. The program's interdisciplinary courses engage students in compelling, real-world challenges. As students work together to design solutions, they learn computational thinking – not just how to code – and become better thinkers and communicators.

Expected industry credential(s) and /or certificate(s) granted upon successful completion of the program (if applicable): Typically hold a certificate (GAERF-PrintED, Adobe, Skillconnect, NOCTI, Autodesk, specialized proprietary software) or diploma in electronic prepress operations (Xerox) or printing prepress technology. An alternative is an associate degree in graphic arts and imaging technology or printing technology, college credits.

Prerequisites for acquiring credential or certificate: Study graphic communications, computers, commercial printing processes, math, lithography, and safety procedures.

Benefits of this level of achievement in the job market: More job opportunities, an increased pay scale, job security, and increased subject matter expertise. High school and postsecondary CTE programs that lead to associate degrees, certificates, and industry-recognized credentials can help young people find skilled employment and give them the option of later returning to school for a higher degree. CTE programs that earn industry certification receive high-quality curricula and professional development opportunities for their instructors. And employers benefit from a more highly skilled workforce with certifiable skills. <http://www.nrccte.org/core-issues/industry-recognized-credentials> Descriptive analyses document the extent of general education CTE course taking by students with LD and their engagement in a concentrated program of occupationally specific general education CTE, a level of course taking early research has linked to improved post-high school employment outcomes.

Bureau of Labor Statistics: Job Outlook: Employment of wholesale and manufacturing sales representatives is projected to grow 7 percent from 2014 to 2024.

Pay: The most recent Rhode Island Labor Market Information for this profession identified as the Sales/Support staff from May 2015 and the entry-level wage is \$13/hr. The median annual pay rate \$29,000–\$59,000 in 2015.

USDOL Career Cluster: Arts / Audio Visual (AV) Technology / Communications

(Not a RI Governor's Workforce Board Priority Sector)

Career Field: Media Communications

Overall Career Information

This standard prepares students to graduate from high school prepared to enter a career in Arts, A/V Technology & Communications program at the post-secondary level, and to be 'job ready' in the field of media communications.

Skills/ knowledge needed to be prepared for entry-level work:

Apply effective and collaborative team communication and management skills to complete the video/writing process from pre-production script/story development through the production and capture of quality video image and audio and collection of information through various forms of media.

Overall Career Information

Pay:

The most recent Rhode Island Labor Market Information for this profession dates from May 2016 and the entry-level wage for Media & Communication Equipment Workers at that time was \$63,252.80 (\$30.41 per hour). The median annual wage for media and communication occupations was \$54,780 in May 2016, which was higher than the median annual wage for all occupations of \$37,040. Information based on RI Department of Labor & Training - Labor Market Information - Occupational Employment Statistics

Job Outlook:

Employment of media and communication occupations is projected to grow 6 percent from 2016 to 2026, about as fast as the average for all occupations, which will result in about 45,300 new jobs. Demand for media and communication occupations is expected to arise from the need to create, edit, translate, and disseminate information through a variety of different platforms. Information based on US Department of Labor - Bureau of Labor Statistics - Occupational Outlook Handbook

How to Become a Media Communications Specialist in Rhode Island

Benefits of This Level of Achievement in Job Market:

Completion of this pathway will equip students with the knowledge and skills to pursue a career in media communications and to obtain post-secondary degrees in: journalism, broadcasting, video/audio production, marketing and communications.

Rhode Island CTE Program Requirements:

The curriculum consists of a 3 course sequence and work-based learning experience(s) that develop several skills. Demonstrate the ability to plan and deliver a broadcast production to exhibit readiness for completing key production functions through: Filming, Film editing, Non-linear Editing, Studio Production, News Writing, Editing, Navigating Legal and Ethical Media Issues and Cultivating and Interviewing Sources.

Required Curriculum:

Requirements are summarized in the following table. Each column MUST be met to satisfy the requirements of the Rhode Island CTE Arts, A/V Technology & Communications.

Academic Requirements	+	Mandatory Credential (s) Earned (At least One)	+	Work-Based Experience (s) + Career Readiness Skills
<p>Required Curriculum: 3 course sequence that develops the following skills: Filming; Film Editing, Non-linear Editing, Studio Production, News Writing and Editing, Navigating Legal and Ethical Media Issues, and Cultivating and Interviewing Sources.</p> <p>Recommended experience/training in</p> <ul style="list-style-type: none"> • Adobe Premiere; • Final-Cut Pro; • Sony Vegas /SoundForge; or • comparable video editing program. 	+	<p>Expected industry credential(s) granted upon successful completion of the program will include one or more of the following:</p> <ul style="list-style-type: none"> • National Occupational Testing Institute (NOCTI) Broadcasting and Journalism Pathway Assessment; <p>And/or</p> <ul style="list-style-type: none"> • Adobe premiere certification <p>And/or</p> <ul style="list-style-type: none"> • Final Cut Pro certification <p>And/or</p> <ul style="list-style-type: none"> • Sony Vegas/SoundForge certification <p>And/or</p> <ul style="list-style-type: none"> • Comportable video editing certification (ex. AVID certification) 	+	<p>This standard adopts the work-based learning standards as developed and approved by the RI Governor’s Workforce Board</p> <p>Work-based learning experience(s) at radio, TV, newspapers, marketing and communications companies and other appropriate businesses in which the skills emphasized by the pathway are used.</p> <p>Essential skills training to increase marketability and employability of students.</p>

Expected Industry Credential(s) and/or Certificate(s) granted upon successful completion of the CTE Program (if applicable):

National Occupational Testing Institute (NOCTI) Broadcasting and Journalism Pathway Assessment, and/or certification in one or more of the following: Adobe premiere certification, Final Cut Pro certification, Sony Vegas/SoundForge certification, and Comportable video editing certification (ex. AVID certification)

Testing Methodology for Credential - National Occupational Testing Institute (NOCTI) Broadcasting and Journalism Pathway Assessment and/or certification in one or more of the following:

- Adobe premiere certification
- Final Cut Pro certification

- Sony Vegas/SoundForge certification
- Comortable video editing certification (ex. AVID certification)

If software certification is available or chosen teachers of this pathway would receive certification from a software editing company. This certification is done regionally during the course of a given school year. This would allow teachers to become certified video editing instructors for that particular program. Teachers would then have the ability to become certified instructors and administer tests to students who would in turn receive certification to be used in a potential job interview or career.

USDOL Career Cluster: Arts / Audio Visual (AV) Technology / Communications

(Not a RI Governor's Workforce Board Priority Sector)

Career Field: Multimedia Artist

Overall Career Information

This standard prepares students to graduate from high school prepared to enter a career in Arts, A/V Technology & Communications program at the post-secondary level, and to be 'job ready' as a Multimedia Artist.

Skills/ knowledge needed to be prepared for entry-level work:

Upon successful completion of a RIDE Approved Visual Arts Pathway, the candidate is expected to: have a working knowledge of the following and be able to apply this knowledge in a variety of situations.

- Work with a team of artists, copywriters, designers, stylists, executives etc. to create multimedia designs
- Work with a wide range of media and use graphic design software
- Think creatively and develop new design concepts, graphics and layouts.
- Research projects to help create realistic and innovative designs based upon the client's needs
- Prepare, present, amend, and edit designs based on client feedback and specifications within required timelines

Overall Career Information

Pay: An associate's degree or higher is typically required to become a multimedia artist, according to the U.S. Bureau of Labor Statistics (BLS). Many employers may require a bachelor's degree or significant work experience in addition to an associate's degree.

<u>Entry Level:</u>	<u>Two - Year Programs:</u>	<u>Four Year Programs:</u>
<u>Sample Job Title/ Median Annual Wage</u>	<u>Sample Job Title/ Median Annual Wage</u>	<u>Sample Job Title/ Median Annual Wage</u>
Artist's Assistant \$30,180	Junior Art Director \$43,232	Illustrator \$44,613
Floral Designer \$31,360	Set Designer \$41,500	Animator \$68,000
Gallery Assistant \$34,131	Animator \$48,000	Video Game Designer \$85,000
Photographer \$30,000		Fashion Designer \$65,170
Photographer Assistant \$19,000		Art Director \$89,820
		Web Developer \$69,000
		Film Director \$70,000
		Producer \$70,000

Job Outlook: Overall, employment of multimedia artists is projected to grow 10 percent from 2016-2026.

How to Become a Multimedia Artist in Rhode Island

Rhode Island CTE Program Requirements: Requirements are summarized in the following table. Each column MUST be met to satisfy the requirements of the Rhode Island CTE Arts, A/V Technology & Communications.

Academic Requirements	+	Mandatory Credential (s) Earned <u>One or more of the following:</u>	+	Work-Based Experience (s) + Career Readiness Skills
<p>Three- Four consecutive years of Visual Arts Courses</p> <p><u>Recommended additional coursework:</u></p> <ul style="list-style-type: none"> • Art History • AP Art History 	+	<p>One or more of the following:</p> <p>Concurrent/ Dual Enrollment College Level Course (EEP)</p> <p>Advanced Placement in 2-D Design</p> <p align="center">and</p> <p>National Occupational Competency Testing Institute (NOCTI-Visual Arts)</p> <p align="center">and/or</p> <p>Adobe Certification</p> <p align="center">and/or</p> <p>Precision Exam (Visual Arts)</p>	+	<p>Visual Arts work-based learning experience(s) and/or related mentoring program</p> <p align="center">and</p> <p>Career Readiness Skills Component</p> <p>This standard adopts the work-based learning standards as developed and approved by RI Governor's Workforce Board</p>

Expected Industry Credential(s) and/or Certificate(s) granted upon successful completion of the CTE Program (if applicable):

NOCTI (Visual Arts) and/or Adobe Certified Associate and/or Precision Exam (Visual Arts)

USDOL Career Cluster: Arts / Audio Visual (AV) Technology / Communications

(Not a RI Governor's Workforce Board Priority Sector)

Career Field: Music Technologist

Overall Career Information

Music Technologists use electronics and computers as tools to design, create, perform, teach, or record music and sound. This standard is for a high school graduate who is both prepared to enter a Music Technology program at the postsecondary level and be "job ready" as an assistant audio technician.

Skills/ knowledge needed to be prepared for entry-level work:

Upon successful completion of a RIDE approved Music Technology Pathway, the candidate is expected to have a working knowledge of the following and be able to apply this knowledge in a variety of situations.

- Audio Editing, Recording, Mixing, and Mastering
- Using MIDI and Virtual Instruments, Sound Design, Music Composition/Production, Creating Video Soundtracks
- Assessing audio requirements, acquiring, editing, processing, mastering, exporting, and implementing audio assets for video games
- Familiarity with the basics of middleware (FMOD or similar) and the basics of a video game editor (Unity or similar) for audio implementation
- Proficiency in using Avid's Pro Tools - industry standard audio software

Overall Career Information

Pay: According to the U.S. Bureau of Labor Statistics the median pay in 2016 was:

Broadcast and Sound Engineering Technicians	\$20.46 per hour	(\$42,550 per year)
Music Directors and Composers	\$25.14 per hour	(\$50,100 per year)
Musicians and Singers	\$25.14 per hour	-
Software Developers-Applications	\$49.17 per hour	(\$102,280 per year)
Web Developers	\$31.79 per hour	(\$66,130 per year)
Post-Secondary Teachers	-	(\$75,430 per year)
High School Teachers	-	(\$58,030 per year)
Middle School Teachers	-	(\$56,720 per year)
Kindergarten and Elementary School Teachers	-	(\$55,490 per year)
Producers and Directors	\$34.11 per hour	(\$70,950 per year)
Multimedia Artists and Animators	\$31.40 per hour	(\$65,300 per year)
O*Net Online classifies this occupation as a New & Emerging occupation in a high growth industry:		
Instructional Designers and Technologists	\$30.03 per hour	(\$62,460 per year)

Job Outlook:

According to the U.S. Bureau of Labor Statistics the expected growth from 2014 to 2024 is:

Broadcast and Sound Engineering Technicians	7,700 new jobs	(7% growth)
Music Directors and Composers	2,600 new jobs	(3% growth)
Musicians and Singers	6,000 new jobs	(3% growth)
Software Developers-Applications	186,600 new jobs	(17% growth)
Web Developers	39,500 new jobs	(27% growth)
Post-Secondary Teachers	177,000 new jobs	(13% growth)
High School Teachers	55,900 new jobs	(6% growth)
Middle School Teachers	36,800 new jobs	(6% growth)
Kindergarten and Elementary School Teachers	87,800 new jobs	(6% growth)
Producers and Directors	11,100 new jobs	(9% growth)
Multimedia Artists and Animators	3,900 new jobs	(6% growth)
O*Net Online classifies this occupation as a New & Emerging occupation in a high growth industry:		
Instructional Designers and Technologists	100,000 or more new jobs	(14% or more growth)

Similar Occupations: (List of similar or related occupations)

High School CTE Pathway Completion	Post-Secondary Two-Year Programs	Four-Year College and University Programs	Dual Degree and Post Graduate
<ul style="list-style-type: none"> • Musician in Rhode Island National Guard or other branch of the service • Intern at recording studio/broadcasting station • Freelance Sound Technician 	<p><u>Associate in Applied Science programs include (examples):</u></p> <ul style="list-style-type: none"> • Music Technology • Video Game Design • Digital Media Production • Game Development & Simulation Programming • Graphics, Multimedia, and Web Design <p><u>Sample Job Titles</u></p> <ul style="list-style-type: none"> • Assistant Sound Designer • Composer/Arranger • Assistant Sound Effects (SFX) Editor • Assistant Foley Artist • Assistant Recording Engineer 	<p><u>Bachelor of Science disciplines include (examples):</u></p> <ul style="list-style-type: none"> • Music Technology • Video Game Design • Digital Media Production • Game Development & Simulation Programming • Graphics, Multimedia, and Web Design <p><u>Sample Job Titles</u></p> <ul style="list-style-type: none"> • Sound Designer • Composer/Arranger • Sound Effects (SFX) Editor • Foley Artist • Recording Engineer • Audio Editor 	<p><u>Music Technology and (examples):</u></p> <ul style="list-style-type: none"> • Computer Science • Video Game Design • Digital Media Production • Game Development • Programming • Graphics/Multi media/ Web Design • Instructional Design <p><u>Sample Job Titles</u></p>

	<ul style="list-style-type: none"> Assistant Audio Editor 	<ul style="list-style-type: none"> Audio Implementer (Audio Programmer) Acoustical Consultant Music Teacher Music Therapist 	<ul style="list-style-type: none"> Software Developer Computer Programmer Web Developer Multimedia Artist Instructional Designer Music Therapy
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How to Become a Music Technologist in Rhode Island

Rhode Island CTE Program Requirements:

These requirements are summarized in the following table. Each column **MUST** be met to satisfy the requirements of the Rhode Island CTE Music Technology Standard.

Academic Requirements	+	Mandatory Credential(s) Earned	+	Work-Based Experience + Career Readiness Skills
<p>Three years (minimum) of core music performance class (Band, Chorus, Orchestra)</p> <p style="text-align: center;">+</p> <p style="text-align: center;">Music Technology I</p> <p style="text-align: center;">+</p> <p style="text-align: center;">Music Technology II</p> <p style="text-align: center;">+</p> <p style="text-align: center;">Music Technology III</p> <p><u>Recommended Coursework in:</u></p> <ul style="list-style-type: none"> Piano Computer Science Music Theory Music History 	+	<p>Concurrent enrollment in the Music, Theatre, and Dance Department at RIC courses:</p> <ul style="list-style-type: none"> MUS 118 Advanced Digital Audio Production I MUS 119 Advanced Digital Audio Production II With a minimum grade of C 	+	<p>This standard adopts the work-based learning standards as developed and approved by RI Governor's Workforce Board</p> <p>Music Technology work-based learning experience and/or related mentoring program</p> <p>Essential skills developed in large performing group classes relevant to career readiness:</p> <ul style="list-style-type: none"> The ability to work intensely and very effectively both alone and with other people Self-discipline and determination The ability to delay gratification The ability to admit mistakes and learn from them

Expected Industry Credential(s) and/or Certificate(s) granted upon successful completion of the CTE Program (if applicable):

High school students interested in becoming a Music Technologist should enroll in a minimum of three and preferably four years of a core curriculum, large ensemble, performance music class (band, chorus, orchestra). Individuals in this pathway must also successfully complete the Music Technology sequence (Music Tech 1-3) which will earn them six college credits in an approved (EEP) Early Enrollment Program.

USDOL Career Cluster: Arts / Audio Visual (AV) Technology / Communications

(Not a RI Governor's Workforce Board Priority Sector)

Career Field: Musician / Music Educator

Overall Career Information

Skills/ knowledge needed to be prepared for entry-level work:

Upon successful completion of a RIDE approved Musician/Music Educator Pathway, the candidate is expected to have a working knowledge of the following and be able to apply this knowledge in a variety of situations.

- Performance proficiency on primary instrument or voice performance proficiency
- Performance proficiency in a large performing ensemble (band, chorus, orchestra)
- Musical History and Literature
- Music Theory, Sight Singing, Ear Training, and Rhythmic Training

Overall Career Information

Pay:

According to the U.S. Bureau of Labor Statistics the median pay in 2016 was:

Music Directors and Composers	\$25.14 per hour	(\$50,100 per year)
Musicians and Singers	\$25.14 per hour	-
Post-Secondary Teachers	-	(\$75,430 per year)
High School Teachers	-	(\$58,030 per year)
Middle School Teachers	-	(\$56,720 per year)
Kindergarten and Elementary School Teachers	-	(\$55,490 per year)

Job Outlook:

According to the U.S. Bureau of Labor Statistics the expected growth from 2014 to 2024 is:

Music Directors and Composers	2,600 new jobs	(3% growth)
Musicians and Singers	6,000 new jobs	(3% growth)
Post-Secondary Teachers	177,000 new jobs	(13% growth)
High School Teachers	55,900 new jobs	(6% growth)
Middle School Teachers	36,800 new jobs	(6% growth)
Kindergarten and Elementary School Teachers	87,800 new jobs	(6% growth)

Similar Occupations: (List of similar or related occupations)

High School CTE Pathway Completion	Post-Secondary Two-Year Programs	Four-Year College and University Programs	Dual Degree and Graduate School
<ul style="list-style-type: none"> • Musician in Rhode Island National Guard and other branches of the service • Composer • Arranger • General Business musician 	<p><u>Associate Degree programs include (examples):</u></p> <ul style="list-style-type: none"> • Associate of Arts in Music <p><u>Sample Job Titles</u></p> <ul style="list-style-type: none"> • Musician (Performance) • Composer/Arranger • Church Musician • Accompanist • Private Music Teacher 	<p><u>Bachelor of Arts or Music programs include (examples):</u></p> <ul style="list-style-type: none"> • Bachelor of Music in Performance • Bachelor of Music in Music Education • Bachelor of Music in Music Business <p><u>Sample Job Titles</u></p> <ul style="list-style-type: none"> • Musician (Performance) • Conductor • Composer/Arranger • Accompanist • Church Musician • Music Educator (K-12) • Post-Secondary Music Educator • Music Entrepreneur • Arts Management 	<p><u>Music/Music Education and (examples):</u></p> <ul style="list-style-type: none"> • Conducting • Medicine • Law • History • Anthropology <p><u>Sample Job Titles</u></p> <ul style="list-style-type: none"> • Conductor • Music Therapist • Copyright Lawyer • Music Historian • Musicologist

*How to Become a Musician / Music Educator in Rhode Island***Rhode Island CTE Program Requirements:**

These requirements are summarized in the following table. Each column **MUST** be met to satisfy the requirements of the Rhode Island CTE Music Technology Standard.

Academic Requirements	+	Mandatory Credential(s) Earned	+	Work-Based Experience + Career Readiness Skills
Three years (minimum – four preferred) of Core music performance class (Band, Chorus, Orchestra) + Private Lessons strongly recommended + AP/EEP Music Theory + EEP Music History + <u>Recommended Coursework in:</u> <ul style="list-style-type: none"> • Music Technology • Piano • (Vocalists) Foreign Languages (Italian, French, German preferred) <u>Recommended extra-curricular activities:</u> All State, Solo & Ensemble Festival, Community and church ensembles and Chamber Music, Jazz Band, Musical Theater, Rock Band, etc.	+	Concurrent enrollment in the Music, Theatre, and Dance Department at RIC courses: MUS 203 Elementary Music Theory + MUS 201 Survey of Music With a minimum grade of C	+	This standard adopts the work-based learning standards as developed and approved by RI Governor's Workforce Board Music Performance / Education work-based learning experience and/or related mentoring program Essential skills developed in large performing group classes relevant to career readiness: <ul style="list-style-type: none"> • The ability to work intensely and very effectively both alone and with other people • Self-discipline and determination • The ability to delay gratification • The ability to admit mistakes and learn from them • Personal time management

Expected Industry Credential(s) and/or Certificate(s) granted upon successful completion of the CTE Program (if applicable): High school students interested in becoming a Musician or a Music Educator should enroll in a minimum of three and preferably four years of a core curriculum, large ensemble, performance music class (band, chorus, orchestra). Individuals in this pathway must also successfully complete the Music Performance/Music Education college courses MUS 203 Elementary Music Theory (EEP Music Theory) and MUS 201 Survey of Music (EEP Music History) which will earn them eight college credits in an approved (EEP) Early Enrollment Program.

USDOL Career Cluster: Arts / Audio Visual (AV) Technology / Communications

(Not a RI Governor's Workforce Board Priority Sector)

Career Field: Sound Engineering Technician

Overall Career Information

An applicable Associate's or Bachelor's degree is *typically* required for entry-level jobs in this growing field. Students will leave high school having completed pathway coursework that will ready them for college or career opportunities that can lead to an applicable degree in this field. Students will be encouraged to take advantage of college-credit bearing coursework made available to them. Students will secure pathway exiting credentials and online micro-credentials that provide access to entry-level opportunities in the field.

Skills/ knowledge needed to be prepared for entry-level work:

Students will develop a broad understanding of the A/V technology and Film Production industry while acquiring specific skills and knowledge that will prove essential to postsecondary study and careers in this field. Skills that stress the understanding and demonstration of proficiency of many of aspects of entry-level careers within the industry such as: photography, sound, scriptwriting, scoring/composition, multi-track recording, musical notation, lighting, design, direction, floor operation, audio and video post-production, and editing.

Broad, Transferable Skills: Other, equally important skills relating to professionalism and employability, including communication, collaboration, creative problems solving and critical thinking, will also be developed. An ongoing commitment to improvement through constructive feedback is a key component of work in this field.

Overall Career Information

Pay: Entry Level

An applicable Associate's or Bachelor's degree is *typically required* for entry-level jobs in this growing field. The median annual wage for a sound engineering technician is \$42,550. The median annual wage for **camera operators for television, video, and motion picture** was \$55,080 in May 2016. The median wage is the wage at which half the workers in an occupation earned more than that amount and half earned less. The lowest 10 percent earned less than \$26,940, and the highest 10 percent earned more than \$109,200. The median annual wage for **film and video editors** was \$62,760 in May 2016. The lowest 10 percent earned less than \$27,640, and the highest 10 percent earned more than \$162,260.

In May 2016, the median annual wages for **camera operators for television, video, and motion picture** in the top industries in which they worked were as follows:

Motion picture and video industries	\$59,780
Professional, scientific, and technical services	\$53,800
Government	\$52,660
Radio and television broadcasting	\$48,950

In May 2016, the median annual wages for **film and video editors** in the top industries in which they worked were as follows:

Motion picture and video industries	\$67,000
Professional, scientific, and technical services	\$53,970
Television broadcasting	\$52,710

Work hours vary with the type of operator or editor, although most work full time. Those who work in broadcasting may put in long hours to meet a deadline. Those who work in the motion picture industry may have long, irregular hours while filming, but go through a period of looking for work once a film is complete and before they are hired for their next job (*Bureau of Labor Statistics Occupational Outlook Handbook*).

Job Outlook:

This pathway prepares students for careers and/or postsecondary study in the audio/video and film industry. Job titles may include, but are not limited to, producer, camera operator*, director, technical producer, sound engineering technician *, videographer, video/sound editor**, broadcast graphic designer, webcast producer/director, composer for film, videogame developer, and/or visual media, sequencing programmer

* indicates average growth according to Governor's Workforce Board

** indicates above average growth according to Governor's Workforce Board

How to Become a Sound Engineering Technician in Rhode Island

Rhode Island CTE Program Requirements:

Requirements are summarized in the following table. Each column MUST be met to satisfy the requirements of the Rhode Island CTE Arts, A/V Technology & Communications Career Cluster along with minimum high school graduation requirements, including mandatory state assessment PSAT and SAT.

Content Requirements for the Audio/Video Technology and Film Pathway	+	Safety Training	+	Work-Based Experience (s) + Career Readiness Skills
Mandatory pathway courses may be taken consecutively or concurrently as individual schedules permit: <ul style="list-style-type: none"> One Year Digital and Video Communications One Year Music Theory One Year Audio/Video Production One Year Music Technology and Sound Engineering +		Health and Safety OSHA 10		Work-Based Learning Experiences This standard adopts the work-based learning standards as developed and approved by the RI Governor's Workforce Board Capstone Project Culminating in senior year of study will incorporate WBL experiences with industry professionals who serve as mentors during the Capstone Project process Skills USA Competition <ul style="list-style-type: none"> National Digital Cinema Competition Relevant State and Local Competitions as available
Equivalent of two years study in the related electives such as: <ul style="list-style-type: none"> Digital and Video Communications Film and Literature Cultural Literacy Mass Media Theater Workshop Production English III and IV* +	+		+	Workplace Skills and Career Readiness NOCTI - Employability Skills Assessment <ul style="list-style-type: none"> 21st Century Skills for Workplace Success Workplace Readiness
Completion of a Capstone Project				

Expected Industry Credential(s) and/or Certificate(s) granted upon successful completion of the CTE Program (if applicable):

NOCTI Job Ready Assessments

- Audio/Visual Communication
- TV/Film Production

NOCTI - Employability Skills Assessment

- 21st Century Skills for Workplace Success
- Workplace Readiness

OSHA 10 for General Industry training

Optional:

Skills USA Career Essentials Assessments

- Audio-Radio Production
- TV Video Production

Recommended:

Udemy Online Courses (offering certificate of completion)

- Aligned courses may include Logic ProX, Pro Tools, Adobe Premiere, Final Cut Pro

Advanced Course Network (ACN) - 3 college credits

- Topics of study TBD and as available

Testing Methodology for Credential/Credentialing Organization

Students will participate in *online* NOCTI Job Ready Assessments and Employability Skills Assessments. Assessments will be administered in the junior and senior years during the first quarter window to serve as both formative and summative measures. Students will access OSHA 10 Training for General Industry through an *online course* provider (such as CareerSafe). The Udemy *online courses* are available for nominal fee. The costs for college credit bearing courses, either through articulation agreements for dual/concurrent enrollment or through state of RI's advanced course network, will be covered through these special agreements with colleges, the state department of education and the program/school budget.

Governor's Workforce Board (GWB) Priority Sector: Business Management, Administration, Finance & Marketing

Career Field: Accounting Clerk, Entry-Level Banking

This standard prepares high school graduates: 1) to graduate fully prepared to earn and hold a position in entry-level banking or as an accounting clerk, and 2) to enter a business program at the post-secondary level.

Skills/ knowledge needed to be prepared for entry-level work: Upon successful completion of a RIDE approved Business Management, Administration & Finance pathway, the candidate is expected to be financially literate and be able to continue the business training at a post-secondary level. To satisfy this expectation it is recommended that an assessment for financial literacy be integrated within the financial concentration of the pathway, as a milestone measure. The Rhode Island Treasurer's Financial Scholars Program (EVERFI) is acceptable. If the students decides to pursue an industry position following high school then successful completion of the Business pathway (including fulfilling the requirement below) will help the student secure entry-level work in the field.

Expected industry credential (s) and/or certificate(s) granted upon successful completion of the program (if applicable):

Bookkeeping, accounting, and auditing clerks usually get on-the-job training. Under the guidance of a supervisor or another experienced employee, new clerks learn how to do their tasks, including double entry bookkeeping. In double entry bookkeeping, each transaction is entered twice, once as a debit (cost) and once as a credit (income), to ensure that all accounts are balanced.

Some formal classroom training also may be necessary, such as training in specialized computer software. This on-the-job training typically takes around six months

These requirements are summarized in the following table

Each column must be met to satisfy the requirements of the Rhode Island CTE Business Standard

Minimum Academic Requirement		Mandatory Credential(s) Earned		Secondary Credential (at least one)		Work based Experience
Three consecutive years of business coursework & <u>Recommended coursework in:</u> -Management -Accounting -Finance -Digital Marketing	+	Rhode Island Financial Scholars Program & <u>At least one</u> of the following: *NOCTI Certification *ASK Certification *NAFTrack Certification	+	QuickBooks or National Retail Federation (NRF) Customer Service Certification	+	Business industry work based learning experience and/or related mentor program

** Please see the list of acceptable credentials below.*

Job Outlook:

Demand for bookkeeping is tied particularly to the growth of small businesses, which tend to hire bookkeepers rather than accountants due to their relatively lower cost. Therefore, economic growth should create some openings for bookkeepers to keep these organizations' financial records. Because bookkeeping, accounting, and auditing clerks make up a large occupation, there will be a large number of job openings from workers leaving the occupation. Thus, opportunities to enter the occupation should be plentiful.

Pay:

The median annual wage for bookkeeping, accounting, and auditing clerks was \$38,390 in May 2016. The median wage is the wage at which half the workers in an occupation earned more than that amount and half earned less. The lowest 10 percent earned less than \$23,880, and the highest 10 percent earned more than \$59,630.

***Acceptable NOCTI certifications include:**

1. Accounting Advanced & Basic Assessment
2. Accounting Basic Assessment
3. Business Financial Management Assessment
4. Financial and Investment Planning Assessment
5. General Management Assessment

***Acceptable ASK certifications include:**

1. Concepts of Entrepreneurship and Management
2. Concepts of Finance
3. Fundamental Business Concepts
4. Fundamental Marketing Concepts

***NAFTrack:**

- High schools offering NAFTrack certification must be accredited themselves by the National Academy Foundation (NAF). Accreditation is granted following a rigorous evaluation process during the NAF guided Year of Planning (YOP). For additional information: NAF.
- NAFTrack ensures college and career readiness by combining classroom and workplace learning as a measure for career and skill proficiencies.
- NOCTI administers NAFTrack Certifications.

NAFTrack certification preparation requires at least four of the following (or equivalents) depending on career choice:

- Principles of Finance, Applied Finance, Financial Planning, Financial Services
- Business Economics, Business in a Global Economy, Entrepreneurship, Ethics in Business
- Insurance
- Managerial Accounting, Principles of Accounting.
 1. with the addition of an intensive internship in a business that reflects the student's career selection
- Integrated work-based learning projects
- Successful passing of industry vetted assessments of student academic proficiency and career-based skill sets

Upon successful completion of NAFTrack Certification, students are eligible for NAFTrack Certified Hiring.

GWB Priority Sector: Construction Technology

Career Field: Junior Carpenter Helper

Skills/knowledge needed to be prepared for entry-level work:

1. Orientation to the trades;
2. Safety (OSHA 10);
3. Related construction math and blueprint reading;
4. Construction issues and resolutions;
5. Construction materials and methods;
6. Construction technology related drawings;
7. Technology specific equipment and basic operational techniques;
8. Quality control;
9. Internship;
10. Human relations and problem solving.

Required Curriculum: National Center for Construction Education Research (NCCER)

Expected industry credential(s) or certificate(s) granted upon career and technical education program completion (if applicable): National Center for Construction Education Research (NCCER) certificate for *Core Technology* (mandatory) and Construction Technology specific NCCER certification (Level 1 and Level 2).

Prerequisites for acquiring credential or certificate: NCCER *Core Technology*.

Benefits of this level of achievement in job market: NCCER certificates for Level 1 and Level 2 prepare secondary program graduates with the necessary skills to attain entry-level employment in the construction pathway. Further, there is a postsecondary benefit as many components of the NCCER curriculum are articulated at local/national postsecondary schools.

Job Outlook* - Employment of construction laborers and helpers is projected to grow 13 percent from 2014 to 2024, faster than the average for all occupations. Laborers and helpers work in all fields of construction, and demand for these workers will mirror the level of overall construction activity.

Pay** - The most recent Rhode Island Labor Market Information for this profession dates from May 2015 and the entry-level wage for Junior Carpenter Helper at that time was \$30,888.00 (\$14.85 per hour).

* US Department of Labor; Bureau of Labor Statistics; *Occupational Outlook Handbook*

** RI Department of Labor & Training; Labor Market Information; Occupational Employment Statistics

GWB Priority Sector: Construction Technology

Career Field: Electrical Apprentice

Skills/knowledge needed to be prepared for entry-level work:

1. Orientation to the trade;
2. Safety (OSHA 10);
3. Relevant math and drawings;
4. Issues and resolutions;
5. Materials and methods;
6. Construction technology related drawings;
7. Technology specific equipment and basic operational techniques;
8. Quality control;
9. Human relations and problem solving.

Required Curriculum: National Center for Construction Education Research (NCCER) *Electrical Level 1 & Electrical Level 2*

Expected industry credential(s) or certificate(s) granted upon career and technical education program completion (if applicable): National Center for Construction Education Research (NCCER) certificate for Core Technology (mandatory) and Construction Technology specific NCCER certification (Level 1 and Level 2) and related apprentice hours.

Prerequisites for acquiring credential or certificate: NCCER *Core Curriculum*.

Benefits of this level of achievement in job market: NCCER certificates for Level 1 and Level 2 prepare secondary program graduates with the necessary skills to attain entry-level employment as an apprentice. Further, there is a postsecondary benefit as many components of the NCCER curriculum are articulated at local/national postsecondary schools and training providers.

Job Outlook - Employment of electricians is projected to grow 14 percent from 2014 to 2024, much faster than the average for all occupations. As homes and businesses require more wiring, electricians will be needed to install the necessary components. The job prospects for electricians should be very good, as many employer's report difficulty finding qualified applicants.

Pay – The most recent Rhode Island Labor Market Information for this profession dates from May 2015 and the entry-level wage for residential Electrician at that time was \$39,811.00 (\$19.14 per hour).

* US Department of Labor; Bureau of Labor Statistics; *Occupational Outlook Handbook*

** RI Department of Labor & Training; Labor Market Information; Occupational Employment Statistics

GWB Priority Sector: Construction Technology

Career Field: HVAC Apprentice

Skills/knowledge needed to be prepared for entry-level work:

1. Orientation to the trades;
2. Safety (OSHA 10);
3. Relevant construction math and drawings;
4. Construction issues and resolutions;
5. Construction materials and methods;
6. Construction technology related drawings;
7. Technology specific equipment and basic operational techniques;
8. Quality control;
9. Internship
10. Human relations and problem solving.

Required Curriculum: National Center for Construction Education Research (NCCER)

Expected industry credential(s) or certificate(s) granted upon career and technical education program

completion (if applicable): National Center for Construction Education Research (NCCER) certificate for Core Technology (mandatory) and Construction Technology specific NCCER certification (Level 1 and Level 2) and related apprenticeship hours.

Prerequisites for acquiring credential or certificate: NCCER Core Technology.

Benefits of this level of achievement in job market: NCCER certificates for Level 1 and Level 2 prepare secondary program graduates with the necessary skills to attain entry-level employment in the construction pathway. Further, there is a postsecondary benefit as many components of the NCCER curriculum are articulated at local/national postsecondary schools.

Job Outlook: Employment of heating, air conditioning, and refrigeration mechanics and installers is projected to grow 14 percent from 2014 to 2024, much faster than the average for all occupations. Candidates familiar with computers and electronics and those with good troubleshooting skills will have the best job opportunities as employers continue to have difficulty finding qualified technicians to install, maintain, and repair complex new systems.

* US Department of Labor; Bureau of Labor Statistics; *Occupational Outlook Handbook*

** RI Department of Labor & Training; Labor Market Information; Occupational Employment Statistics

GWB Priority Sector: Construction Technology

Career Field: Plumber Apprentice

Skills/knowledge needed to be prepared for entry-level work:

1. Orientation to the trades;
2. Safety (OSHA 10);
3. Understanding of Plumbing Technology related equipment and supplies;
4. Construction math and drawings;
5. Construction issues and resolutions;
6. Materials and methods;
7. Construction technology related drawings;
8. Technology specific equipment and basic operational techniques;
9. Quality control;
10. Internship;
11. Human relations, strong interpersonal skills, customer service skills and problem solving.

Required Curriculum: National Center for Construction Education Research (NCCER)

Expected industry credential(s) or certificate(s) granted upon career and technical education program completion (if applicable):

National Center for Construction Education Research (NCCER) certificate for *Core Technology* (mandatory) and Construction Technology specific NCCER certification (Level 1 and Level 2) and related earned apprenticeship hours.

Prerequisites for acquiring credential or certificate: *NCCER Core Technology*. Due to the physical nature of this work it is likely an employer will require a new hire to secure a physical exam prior to employment.

Benefits of this level of achievement in job market: NCCER certificates for Level 1 and Level 2 prepare secondary program graduates with the necessary skills to attain entry-level employment in the construction pathway. Further, there is a postsecondary benefit as many components of the NCCER curriculum are articulated at local/national postsecondary schools.

Job Outlook* - Employment of plumbers, pipefitters, and steamfitters is projected to grow 12 percent from 2014 to 2024, faster than the average for all occupations. Construction of buildings which need new plumbing systems should drive demand for these workers. Overall job opportunities are expected to be good, with some employers continuing to report difficulty finding qualified workers.

Pay** – The most recent Rhode Island Labor Market Information for this profession dates from May 2015 and the entry-level wage for Plumbers at that time was \$39,187.00 (\$18.84 per hour).

* US Department of Labor; Bureau of Labor Statistics; *Occupational Outlook Handbook*

** RI Department of Labor & Training; Labor Market Information; Occupational Employment Statistics

GWB Priority Sector: Construction Technology

Career Field: Welder – Entry-level

Skills/knowledge needed to be prepared for entry-level work:

1. Orientation to the trades;
2. Safety (OSHA 10);
3. Relevant math and drawings;
4. Issues and resolutions;
5. Related materials and methods;
6. Welding technology related drawings;
7. Technology specific equipment and basic operational techniques;
8. Quality control;
9. Human relations and problem solving.

Required Curriculum: National Center for Construction Education Research (NCCER)

Expected industry credential(s) or certificate(s) granted upon career and technical education program completion (if applicable): National Center for Construction Education Research (NCCER) certificate for *Core Technology* (mandatory) and Construction Technology specific NCCER certification (Level 1 and Level 2).

Prerequisites for acquiring credential or certificate: NCCER *Core Technology* and NCCER *Introduction to the Maritime Industry*.

Benefits of this level of achievement in job market: NCCER certificates for Level 1 and Level 2 prepare secondary program graduates with the necessary skills to attain entry-level employment in the construction pathway. Further, there is a postsecondary benefit as many components of the NCCER curriculum are articulated at local/national postsecondary schools.

Job Outlook* - Employment of welders, cutters, solderers, and brazers is projected to grow 4 percent from 2014 to 2024, slower than the average for all occupations. Despite slower than average employment growth, skilled welders with up-to-date training should have good job opportunities.

Pay** – The most recent Rhode Island Labor Market Information for this profession dates from May 2015 and the entry-level wage for Welders at that time was \$35,048.00 (\$16.85 per hour).

* US Department of Labor; Bureau of Labor Statistics; *Occupational Outlook Handbook*

** RI Department of Labor & Training; Labor Market Information; Occupational Employment Statistics

Priority Sector: Construction Technology

Career Field: Sheet Metal Apprentice

Skills/knowledge needed to be prepared for entry-level work:

1. Orientation to the trades;
2. Safety (OSHA 10);
3. Relevant construction math and drawings;
4. Construction issues and resolutions;
5. Construction materials and methods;
6. Construction technology related drawings;
7. Technology specific equipment and basic operational techniques;
8. Quality control;
9. Internship;
10. Human relations and problem solving.

Expected industry credential(s) or certificate(s) granted upon career and technical education program completion (if applicable): National Center for Construction Education Research (NCCER) certificate for Core Technology (mandatory) and Construction Technology specific NCCER certification (Level 1 and Level 2).

Prerequisites for acquiring credential or certificate: NCCER *Core Technology* and NCCER *Introduction to the Maritime Industry*.

Benefits of this level of achievement in job market: NCCER certificates for Level 1 and Level 2 prepare secondary program graduates with the necessary skills to attain entry-level employment in the sheet metal trades. Further, there is a postsecondary benefit as many components of the NCCER curriculum are articulated at local/national postsecondary schools.

Job Outlook* - Employment of sheet metal workers is projected to grow 7 percent from 2014 to 2024, about as fast as the average for all occupations. Job opportunities should be particularly good for sheet metal workers who complete apprenticeship training or are certified welders.

Pay** – The most recent Rhode Island Labor Market Information for this profession dates from May 2015 and the entry-level wage for Sheet Metal Apprentice is \$35,235.00 (\$16.94 per hour).

* US Department of Labor; Bureau of Labor Statistics; *Occupational Outlook Handbook*

** RI Department of Labor & Training; Labor Market Information; Occupational Employment Statistics

GWB Priority Sector: Education, Training & Human Services

Career Field: Education (Education, Child Care, Teacher Assistant)

This standard is for a high school graduate who is both prepared to enter a teacher preparation program at the postsecondary level and be “job ready” as a teacher assistant or childcare employee.

Skills/ knowledge needed to be prepared for entry-level work: Upon successful completion of a RIDE approved Education, Training, and Human Services pathway, the candidate is expected to demonstrate the following:

- **Communication skills:** Teacher assistants need to discuss students’ progress with teachers and parents, so they need to be able to communicate well. Strong written and oral communication skills.
- **Interpersonal skills:** Teacher assistants interact with a variety of people, including teachers, students, parents, and administrators. They need to develop good working relationships in their job.
- **Patience:** Working with students of different abilities and backgrounds can be difficult. Teacher assistants must be patient with students who struggle with material.
- **Resourcefulness:** To reinforce lessons, teacher assistants must explain information to students in a way that meets each student’s learning style. Teacher assistants should be self-motivated, demonstrate problem-solving skills and demonstrate willingness to continually grow and learn as a professional.
- **Professional Skills:** Teacher assistants should act in a professional manner at all times, be dependable, reliable, understand and demonstrate confidentiality, be able to pass a BCI check and maintain high level of ethical behavior.

Expected industry credential (s) and/or certificate(s) granted upon successful completion of the program (if applicable): High school students interested in becoming a teacher, child care employee, teacher assistant, or who are pursuing a career in human services should take, at a minimum, a standard high school curriculum and complete the CTE course sequence in the Education pathway. Students who are interested in pursuing a four-year college program should ensure they are completing the requirements for acceptance into those post-secondary programs.

These requirements are summarized in the following table *and each column must be met to satisfy the requirements of the Rhode Island CTE Education Pathway:*

Minimum Academic Requirement	Safety	Mandatory Credential Earned (at least one)	Optional Credentials	Work-based Experience
<ul style="list-style-type: none"> • 4 courses in English • 4 courses in Math • 3 courses in Science • 3 courses in S. Studies At least one course in both technology and the arts	First Aid / CPR & AED Training	Completion of an approved Teacher Assistant Training program and/or Attain the minimum passing score on the RI Parapro Exam	Rhode Island Early Learning and Development Standards Certificate	Internship Experience <ul style="list-style-type: none"> • Placement in a K-12 educational setting should be with a certified and tenured teacher • Early Childhood placement should be in a center with Bright Stars affiliation

At least a minimum of three consecutive years of coursework in Education Pathway (to include birth to 21 with embedded content in English Language Learners (ELL) and children with special needs)			OSHA 10 Certificate	
			Red Cross Babysitting & Child Care Certificate	
<u>Recommended Coursework in:</u> Psychology Sociology Ethical Issues Financial Literacy				

Other resources: Educators Rising (<https://www.educatorsrising.org/>) Future Teachers of America (<http://futureteachers.org/>), Teacher Cadet Program (<https://www.teachercadets.com/teacher-cadets-overview.html>) HYPERLINK "http://futureteachers.org/"

Job Outlook: Per the Rhode Island Department of Labor and Training Occupational Outlook 2024, demand for educational jobs is expected to grow 4% over the ten-year period from 2014-2024; in addition, growth in the related field of community and social services is expected to grow 7.6% over the same ten-year period. This is above the rate of both the Rhode Island (7.1%) and national (6.5%) projected labor market growth for the same ten year period.

Immediate employment opportunities in the Education, Training, and Human Services field include PK-12 public school teacher assistant, Behavioral Assistant/Specialist, and Child Care teacher assistant (includes center based, school age and family childcare).

Post-Secondary employment opportunities include PK-12 teacher (early childhood, elementary, middle, high school, dual language), Child Care Center head teacher, Behavioral Specialist, and Social Services employee.

Pay: According to the RI Department of Labor and Training Labor Market Information, the median annual salary for all teachers and instructors, except substitute teacher, is from \$79,550 to an experienced median wage of \$101,900. The median entry-level annual salary for a PK-12 public school teacher assistant in Rhode Island is from \$30,070 to an experienced median wage of \$36,350.

<http://www.dlt.ri.gov/lmi/oes/statealpha.htm>

GWB Priority Sector: Environmental & Life Sciences - Bioscience

Career Field: Animal Science Veterinary Assistant / Lab Animal Caretaker

This standard prepares students: to graduate from high school prepared and ready to seek an entry-level position as a Veterinary Assistant, and to enter an Environmental and Life Sciences post-secondary program.

Skills/knowledge needed in order to be prepared for entry-level work: Upon successful completion of a RIDE Approved Environmental and Life Sciences Pathway, the candidate is expected to have a working knowledge of the following and be able to apply this knowledge in a variety of situations.

- Animal management, husbandry and handling
- Animal body systems, health, nutrition, genetics and reproduction
- Animal production systems
- Companion animal care and management

Expected industry credential (s) and/or certificate (s) granted upon successful completion of the pathway (if applicable): High school students interested in becoming a Veterinary Assistant should enroll in a three or four year Environmental and Life Sciences curriculum, along with four years of Math, and three years of Science, including Biology, and Chemistry. Anatomy and physiology are recommended. Students will be well versed in animal body systems, husbandry, and handling production. One of three choices for credentialing must be met, and students will complete OSHA 10 safety training.

Requirements are summarized in the following table. Each column MUST be met to satisfy the requirements of the Rhode Island CTE Environmental and Life Sciences Standard.

Academic Requirements		Safety Training		Mandatory Credential (s) Earned		Work-Based Experience (s) + Career Readiness Skills
Three / four consecutive years of Environmental & Life Sciences Coursework + Four years of Math + Three years of Science, to include Biology Recommended Coursework in: Chemistry Anatomy Physiology	+	OSHA 10	+	One or more of the following: National Occupational Competency Testing Institute (NOCTI) Small Animal Science and Technology Canine and Feline CPR and First Aid Certification Concurrent Enrollment in the College of Environmental and Life Science at URI Course – AVS 101	+	Environmental & Life Sciences work-based learning experience (s) and/or related mentoring program + Career Readiness Skills Component, such as: • FFA LifeKnowledge • SkillsUSA Career Essential Suite

Job Outlook: Per the US Bureau of Labor Statistics, the demand for Veterinary Assistants is expected to increase 9% over the ten-year period from 2014-2024. In 2014, there were approximately 73, 400 jobs.

Pay: According to the US Bureau of Labor statistics, the average starting salary is approximately \$25, 250.

Environmental and Life Sciences Post-Secondary Options

Two-Year Programs	Four-Year College and University Programs
<u>Associate in Applied Science programs include (examples):</u> Animal Science Veterinary Assisting <u>Sample Job Titles</u> Veterinary Technician Veterinary Practice Manager Veterinary Assistant Laboratory Technician Livestock Manager Equine Manager	<u>Bachelor of Science disciplines include (examples):</u> Pre-Veterinary Medicine Animal Science Zoology <u>Sample Job Titles</u> Zoologist Wildlife Biologist Agricultural Educator Nutritionist USDA Animal and Plant Health Inspection Services Geneticist

GWB Priority Sector: Environmental & Life Sciences - Bioscience

Career Field: Aquaculture / Agricultural and Food Science Technician

This standard is for a high school graduate who is both prepared to enter a 2-4-year college program at the post-secondary level and be “job ready” as a technician in the Aquaculture/ Environmental & Life Science Industry.

Skills/ knowledge needed to be prepared for entry-level work: Upon successful completion of a RIDE approved Aquaculture Pathway, the candidate is expected to know and be able to:

Possess the experience and background knowledge to assist in a variety of tasks such as tank maintenance, water chemistry testing (titration and meter), small plant and animal aquatic husbandry, prepare and operate laboratory testing equipment, maintain a safe and sterile laboratory environment, set up experiments, run experiments, record data and observations, compile, analyze and summarize results, diagnose technical flaws in equipment, as well as conduct repairs.

Be prepared to run and maintain a fully functional greenhouse equipped with a hydroponic system. Germination, growth, and transition to soil are all part of the hydroponics system.

Expected industry credential (s) and/or certificate(s) granted upon successful completion of the program (if applicable): High school students interested in the Aquaculture Industry should enroll in a three-year Environmental and Life Sciences Aquaculture curriculum and take four years of Math. The student must have a strong foundation in Science, including Physical Science, Biology, and Chemistry. It is also recommended that the student take Applied Pre-Calculus and Statistics classes to prepare for continued studies in a 2-4 year post-secondary institution. The student will successfully complete a college-level course in this field of study.

Requirements are summarized in the following table. Each column must be met to satisfy the requirements of the Rhode Island CTE Aquaculture Standard.

Academic Requirements		Safety Training		Mandatory Credential (s) Earned		Work-Based Experience (s) + Career Readiness Skills
Three consecutive years of Environmental & Life Sciences Aquaculture Coursework + Four years of Math (Minimum: Algebra II, Recommended Pre-Calculus and Statistics) + Three years of Science Recommended fourth year (Biology, Chemistry and Physical Science with recommended Advanced Placement Science)	+	Safety Training Component is Required Recommended: OSHA 10	+	College Level Courses in Field of Study: Concurrent Dual Enrollment EEP	+	Environmental & Life Sciences Work-Based Learning experience(s) and/or related mentoring program. Career Readiness Skills Component such as: <ul style="list-style-type: none"> • SkillsUSA Career Essentials Suite • Naviance • Junior Achievement

Job Outlook:

Employment of aquaculture/ agricultural and food science technicians is projected to grow 5 percent from 2014 to 2024, about as fast as the average for all occupations. Advances in technology and scientific knowledge related to food production will require greater control of production and processing activities, increasing demand for these positions.

Pay:

The median annual wage for aquaculture/agricultural and food science technicians was \$37,550 in May 2016 (\$18.05 per hour).

Environmental & Life Sciences Post-Secondary Options:

Two-Year Programs	Four-Year College and University Programs
<u>Sample Job Title/Median Annual Wage:</u> Chemical Technician (\$45,840) Agricultural Inspector (\$42,800)	<u>Sample Job Titles/Median Annual Wage:</u> Food Scientist and Technologist (\$63,950) Soil and Plant Scientist (\$63,200) Animal Scientist (\$60,330) Agricultural Engineer (\$73,640) Biological Technician (\$42,520)

<https://www.bls.gov/ooh/life-physical-and-social-science/agricultural-and-food-science-technicians.htm>

GWB Priority Sector: Environmental & Life Sciences - Bioscience

Career Field: Bioscience

This standard is for a high school graduate who is prepared to enter a certified, lab-based science program at the secondary level and be 'job ready' as a Biomedical Science Technician/Technologist or Laboratory Technician/Assistant.

Skills / knowledge needed in preparation for entry-level work within the Biomedical / Biotechnical field: Upon completion of a RIDE Approved Environmental and Life Sciences pathway, the candidate is expected to: Demonstrate a well-developed "laboratory sense" regarding Safety Protocols (MSDS), ID and SDS data, FDA Regulations, cGMP, GLP, SOP writing, Sterile Gowning, Documentation, Basic Laboratory Instrumentation, Quality Control Functions in Microbiology and Chemistry, Record Keeping, Aseptic Handling, and Solution. Have knowledge of Medical Terminology, Documentation, Basic Mathematics and Computer skills (i.e. Word Processing and Spreadsheet Analysis), Medical Testing Equipment Knowledge, Medical History and Review of Systems

Documentation Knowledge, Bloodborne Pathogens and Universal Precautions Knowledge).

Demonstrate Soft-skills, including Interpersonal Communication, Teamwork and Collaboration, Critical Thinking, Conflict

Resolution, Ethics, and Professional Demeanor.

Expected industry credential(s) and/or certificate(s) granted upon successful completion of the pathway (if applicable): High school students interested in becoming a Biomedical Science Technician / Technologist OR Laboratory Technician / Assistant should enroll in a three or four year Environmental and Life Sciences curriculum, along with four years of math, and three years of science, with a recommended fourth year. A safety training component is required (OSHA 10 recommended), and one or more of the credentials listed below, work-based learning experiences, and a career readiness component are required.

Requirements are summarized in the table below. Each column MUST be met to satisfy the requirements of the Rhode Island CTE Environmental and Life Sciences Standard

Academic Requirements		Safety Training		Mandatory Credential (s) Earned		Work-Based Experience (s) + Career Readiness Skills
Three to four consecutive years of Environmental & Life Sciences Coursework + Four years of Math (Minimum: Algebra II, Recommended Pre-Calculus and Statistics) + Three years of Science Recommended fourth year (Biology, Chemistry and Physical Science with Recommended Advanced Placement Science)	+	Safety Training Component is Required Recommended: OSHA 10	+	One or more of the following: National Occupational Competency Testing Institute (NOCTI) Project Lead the Way (PLTW) Three Project Lead the Way Course Completion Certificates Precision Exams in Related Field College Level Courses in Field of Study: Concurrent Dual Enrollment EEP	+	Environmental & Life Sciences Work-Based Learning experience(s) and/or related mentoring program. Career Readiness Skills Component such as: <ul style="list-style-type: none"> • SkillsUSA Career Essentials Suite • Naviance • Junior Achievement

Job Outlook:

Entry-Level Careers within the Biomedical / Biotechnical field generally require 6 months of formal training, a current and valid license through the Department of Health to practice in Rhode Island, and additional certifications as needed.

Biomedical Science Technician- Career opportunities exist within various areas of focus (i.e. Cellular and Molecular Biology, Clinical Laboratory Science, Endoscopy, Equipment Maintenance, Pathology/Pathobiology, Bioinstrumentation, Biomaterials, Biomechanics, Pharmacy/Pharmacology, Biostatistics, Biology Sanitation, and Equipment Maintenance/Operation (within CT Scan, MRI, Radiology, Anesthesiology, Diagnostic Imaging, etc.)

Laboratory Technician- Career opportunities exist within various areas of focus (i.e. Biotechnology, Chemical Technician, Clinical Chemical Analysis, Biopharmaceuticals, Biological Technician, Biomanufacturing Associate, Hematology, Histology, Medical Device Testing, Microbiology, Pathology, Sterile Processing, Solution Preparation, etc. Technical Laboratory positions require a minimum of an Associate's Degree and demonstrated competence or experience in that field.

Pay- What to Expect:

Entry-Level Careers within the Biomedical / Biotechnical field (post - High School Diploma) generally start in the \$12-\$17/hour range.

Environmental and Life Sciences Post-Secondary Options:

Two-Year Programs	Four-Year College and University Programs
<p><u>Associates Degree programs include:</u> (A.S.) Associate of Science Degree General Science, Biotechnology, Biology, Biological Sciences, Chemistry, Pharmacy, Physical Sciences, Radiology, etc. (A.A.S.) Associates Degree in Applied Science Applied Physics, Biology-Pre-Medicine, Chemical Technology, Molecular Biotechnology, Physical Sciences (Integrated Science)</p> <p><u>Sample Job Titles:</u> Medical Lab Technician, Pharmacy Technician, Chemical Technician, Biomedical Technician, Laboratory Technician, Instrumentation Technician, Medical Technologist, Biopharmaceutical Technician, Clinical Data Analyst, Equipment Technician, Research Technician / Assistant, Water Quality Analyst, etc.</p>	<p><u>Bachelor of Science Degree disciplines include:</u> (B.S.) Bachelor of Science Degree - Biological and Biomedical Sciences Biomedical Informatics, Biomedical Technology, Biological Science, Biotechnology, Biochemistry, Forensic Pathology, etc. (B.S.) Bachelor of Science Degree - Physical Sciences Mathematics and Physics, Chemistry, Physics, Forensic Chemistry, Statistics, Biochemistry, etc.</p> <p><u>Sample Job Titles:</u> Biochemist, Bio-Informatician, Biophysicist, Biotechnology Laboratory Technician, Biological Technician, Biomedical Engineer, Chemical Engineer, Clinical Research Associate, Forensic Science Technician, Microbiologist, Pharmacologist, Quality Control, Research Scientist, Environmental Health and Safety Officer, Genetic Therapist, etc.</p>

GWB Priority Sector: Environmental & Life Sciences - Bioscience

Career Field: Plant Science – Landscaper & Groundskeeper

This standard prepares students: to graduate from high school prepared and ready to seek an entry-level position as a Landscape Professional, and to enter an Environmental and Life Sciences post-secondary program.

Skills/knowledge needed in order to be prepared for entry-level work: Upon successful completion of a RIDE Approved Environmental and Life Sciences Pathway, the candidate is expected to know and be able to:

Identify plants used in the industry

Identify and demonstrate safe use of tools

Explain plant life cycles

Demonstrate methods of plant cultivation

Identify landscape pests and determine management strategies

Explain basic ecological cycles (nutrients, soil, and water)

Possess professional workplace communication skills

Expected industry credential (s) and/or certificate (s) granted upon successful completion of the pathway (if applicable): High school students interested in becoming a Landscaper or Groundskeeper should enroll in a three or four year Environmental and Life Sciences curriculum, along with four years of Math, and three to four years of Science. Students enrolled in this pathway will take the National Occupational Competency Exam (NOCTI) in Horticulture-Landscaping or other field related NOCTI assessment. OSHA 10 Safe Workplace training is required.

Requirements are summarized in the following table. Each column MUST be met to satisfy the requirements of the Rhode Island CTE Environmental and Life Sciences Standard.

Academic Requirements		Safety Training		Mandatory Credential (s) Earned		Work-Based Experience (s) + Career Readiness Skills
Three - four consecutive years of Environmental & Life Sciences Coursework + Four years of Math + Three - four years of Science	+	OSHA 10 Safe Workplace Recommended-Pesticide Safe Worker	+	National Occupational Competency Exam (NOCTI): Horticulture-Landscaping or Other Field Related NOCTI Assessment	+	Environment & Life Sciences work-based learning experience (s) and/or related mentoring program + Career Readiness Skills Component such as: • FFA LifeKnowledge • SkillsUSA Career Essential Suite

Job Outlook: Bright, according to RI LMI Occupational Projections. The employment of landscaping and groundskeepers is projected to grow 6 percent from 2014 to 2024. More workers will be needed to meet the increasing demand for lawn care and landscaping services from large institutions and individual homeowners. Job prospects should be very good (bls.gov).

Opportunities: Entry-level placement; licensed professional.

Pay: In Rhode Island, hourly median wages for Landscaping and Groundskeeping workers (\$13.72) are below the national mean (\$18.77). Median wages for the more skilled jobs such as tree trimmers (arborists) (\$20.75) and supervisors (\$23.09) are above average. With a four-year post-secondary degree, Landscape Architects' median wages (2016) are \$30.52 hourly and \$63,480 annually.

Environmental and Life Sciences Post-Secondary Options

<u>High School Degree Minimum</u>	<u>Two & Four-Year College and University Programs</u>
<p><u>Sample Job Titles</u> Retail /Wholesale Nursery- Field manager, Greenhouse manager, Sales manager Landscape/Garden construction Retail/Wholesale Florist Landscape Designer Landscape Maintenance/Contractor – Masonry and Hardscape, Landscape lighting, Irrigation, Machine maintenance, Crew supervisor</p>	<p><u>Bachelor of Science disciplines include (examples:</u> <u>Sample Job Titles</u> Entomologist Agronomist Soil Scientist Soil Conservationist Landscape Architect Agricultural Educator</p>

GWB Priority Sector: Environmental & Life Sciences - Bioscience

Career Field: Process Technician (Chemical Manufacturing, Research & Development)

This standard prepares students to graduate from high school prepared to enter an Environmental and Life Sciences program at the post-secondary level, and to be 'job ready' as a Process Technician.

Processing Technicians monitor the quality of products and processes at chemical and biological manufacturing facilities, as well as environmental, medical, and food service laboratories. Responsibilities may include: adjusting processing equipment to improve production efficiency and output; collecting samples from production batches, which then are tested for impurities and other defects; and testing product packaging to ensure that it is well designed, durable, and will have a limited impact on the environment. Process Technician positions are found in several industries including: pharmaceutical; environmental; food services/ manufacturing; plastics and chemical manufacturing; textile manufacturing; medical research and others.

The processing technician in manufacturing is involved in the execution of fully developed chemical processes to prepare marketed products; process robustness is expected and the technician is trained and qualified to execute the process. By contrast, process technician in an R&D facility (pilot plant) is involved in the execution of the process as they are developed; process variability is routine. Each new campaign is a process introduction. The R&D technician trains and is qualified on processing equipment, process troubleshooting, and unit operations independent of a specific process. In both cases, technicians may be required to operate under current good manufacturing/laboratory practices, or cGxP, and to have a working knowledge of environmental health and safety (EHS) guidelines.

In practice, a well-defined and documented employee-training program is essential to ensuring compliance with procedures and program expectations. An essential element of a good training program is the requirement for refresher training to ensure that the operating staff maintains a competent skill level and knowledge needed to be compliant with regulatory requirements.

Skills/knowledge needed in order to be prepared for entry-level work: Upon completion of a RIDE Approved Environmental and Life Sciences pathway, the candidate is expected to know and be able to:

- Monitor chemical processes;
- Set up/ use and maintain chemical processing equipment and associate software platforms that may control them;
- Troubleshoot production problems and/or malfunctioning instruments;
- Prepare chemical solutions;
- Conduct chemical/biological physical experiments related to research and development;
- Effectively use relevant technology/ instrumentation;
- Understand and follow Standard Operating Procedures (SOP);
- Practice Good Manufacturing Practices (GMP) and Good Lab Practices (GLP);
- Understand basic fluid mechanics and filtration;
- Work safely in a laboratory environment;
- Demonstrate analytical skills;
- Communicate effectively orally and in writing;
- Think critically;
- Interact with colleagues and team members appropriately;
- Observe and document processes;

- Effectively manage their time.

Expected industry credential (s) and/or certificate (s) granted upon successful completion of the pathway (if applicable):

High school students interested in becoming a process technician should enroll in a three or four year Environmental and Life Sciences curriculum, along with four years of math, to include basic applied math, and three years of science, including Chemistry. For individuals working in this pathway in the manufacturing component both National Center for Construction Education Research (NCCER) HVAC & Plumbing (Levels 1 & 2) are credentials that support this pathway.

Requirements are summarized in the following table. Each column MUST be met to satisfy the requirements of the Rhode Island CTE Environmental and Life Sciences Standard.

Academic Requirements		Safety Training		Mandatory Credential (s) Earned		Work-Based Experience (s) + Career Readiness Skills
Three / four consecutive years of Environmental & Life Sciences Coursework + Three years of Science , to include Chemistry. + Four years of Math to include Basic Applied Mathematics Recommended- Mechanical, plumbing and HVAC or engineering coursework	+	OSHA 10	+	<u>One or more of the following:</u> Project Lead the Way (PLTW) Three Project Lead the Way Course Completion Certificate College level courses in Field of Study: Concurrent/Dual Enrollment with CCRI For individuals working in this pathway in the manufacturing component , both National Center for Construction Education Research (NCCER) HVAC & Plumbing (Levels 1 & 2) are eligible to support this pathway.	+	Science, mechanical, or engineering work-based learning experience (s) and/or related mentoring program + Career Readiness Skills Component , such as: FFA LifeKnowledge SkillsUSA Career Essential Suite Naviance Junior Achievement

Job Outlook: As the instrumentation and techniques used in research, development, and production become more complex, employers will seek job candidates with highly developed technical skills. Job opportunities are expected to be best for graduates of applied science technology programs who are well trained in the latest technology and sophisticated equipment used in research and development or production facilities.

Pay (Post-Secondary Program)

SOC Code	Occupational Title	US	RI	CT	MA	Typical Education	Job Training
17-3025	Env. Eng. Technicians	\$23.64	\$18.17	\$24.09	\$21.96	AD	None
17-3026	Industrial Engineering Technicians	\$25.64	\$26.44	\$30.44	\$26.68	AD	None
17-3027	Mechanical Engineering Technicians	\$26.19	\$27.97	\$31.56	\$27.17	AD	None
19-4031	Chemical Technicians	\$22.04	\$21.33	\$23.12	\$25.91	AD	MT OJT
19-4091	Environmental Science and Protection Technicians, Incl. Health	\$21.25	\$22.82	\$18.94	\$26	HSD	MT OJT
29-2011	Med & Clinical Lab. Technologists	\$29.36	\$36.26	\$34.58	\$35	HSD	MT OJT
29-2012	Medical & Clinical Laboratory Technicians	\$18.73	\$27.63	\$21.38	\$19.48	HSD	LT OJT
29-2012	Med. and Clinical Lab. Technicians	\$18.73	\$27.63	\$21.38	\$19	BD	None
50-8031	Water & Wastewater Treatment Plant & System Operators	\$22.00	\$24.26	\$30.43	\$25.60	AD	None
51-6061	Textile Bleaching and Dyeing Machine Operators and Tenders	NA	NA	NA	\$14	AD	ST OJT
51-9011	Chem. Equip. Operators & Tenders	\$22.97	\$17.40	\$21.79	\$24.47	HSD	ST OJT
51-9023	Mixing & Blending Machine Setters, Operators, & Tenders	\$17.16	\$18.20	\$17.79	\$18.25	HSD	ST OJT
Average for all occupations (variations of Process Technician)		<u>\$22.52</u>	<u>\$24.37</u>	<u>\$25.05</u>	<u>\$24.51</u>		

GWB Priority Sector: Healthcare

Career Field: Certified Nursing Assistant (CNA)

Skills/ knowledge needed to be prepared for entry-level work: Upon completion of this high school Nursing Assistant training program, the candidate is expected to know and be able to:

1. Assist patients/residents with Activities of Daily Living (ADLs) including personal hygiene, dressing and grooming, nutrition and hydrations, elimination, rest/sleep/comfort;
2. Perform basic nursing skills including, following infection control and safety/emergency procedures/practices, therapeutic/technical procedures, data collection and reporting;
3. Assist patients/residents with restorative care skills;
4. Assist patients/residents with emotional and Mental Health needs;
5. Communicate with medical personal and patients;
6. Abide by client's rights, legal and ethical behaviors;
7. Be an active member of the healthcare team;
8. Provide care that meets spiritual and cultural needs.

Required Curriculum: District decision

Expected industry credential (s) and/or certificate(s) granted upon successful completion of the program (if applicable): Rhode Island Certified Nursing Assistant (CNA) license secured by successfully passing a written exam/skills evaluation with an associated cost of \$99.00.

Prerequisites for acquiring credential or certificate: Candidate must complete a Rhode Island Department of Health-approved nursing assistant training program*.

The required minimum of total hours for the Certified Nursing Assistant Training Program is one hundred (100). No less than twenty (20) hours of practical training integrated (off site in accredited long-term care facility). At least sixteen (16) hours of classroom instruction shall be required prior to a trainee's direct involvement in patient care.

Benefits of this level of achievement in job market: Many CNAs use their knowledge and training as a stepping-stone toward becoming a medication aide, Licensed Practical Nurse, Registered Nurse, or enrolled in a pre-medicine program. The R.I. Department of Health and National Nurse Aide Assessment Program (NNAAP) certification provides a foundation for future training, and it can lead to additional employment opportunities in the health care field. Frequently candidates complete an accredited medication course and become medication aides/CNAs in long-term care facilities.

Job Outlook - Employment of nursing assistants and orderlies is projected to grow 17 percent from 2014 to 2024, much faster than the average for all occupations. Because of the growing elderly population, many nursing assistants and orderlies will be needed to assist and care for these patients.

Pay – The most recent Rhode Island Labor Market Information for this profession dates from May 2015 and the entry-level wage for nursing assistants and orderlies at that time was \$25,022.00 (\$12.03 per hour).

*A student is allowed one (1) year from the date you began your nursing assistant training program to pass the nursing assistant examination. If you do not pass the NNAAP Examination within the 1-year training period or have failed the examinations three (3) times, candidate is required to re-train in program.

GWB Priority Sector: Healthcare

Career Field: Certified Patient Care Technician (CPCT) *provisional license*

Skills/ knowledge needed to be prepared for entry-level work: Upon completion of this high school Patient Care Technician program, the candidate is expected to know and be able to:

1. Respond to patient calls and requests;
2. Assist patients with personal hygiene tasks;
3. Tidy patients' rooms;
4. Serve meals and feed patients;
5. Monitor vital signs.
6. Draw laboratory specimens;
7. Perform EKGs and other clinical tasks;
8. Set up equipment;
9. Assist the physician or nurse with therapies.

Required Curriculum: District decision

Expected industry credential (s) and/or certificate(s) granted upon successful completion of the program (if applicable):

Certified Patient Care Technician (Through the National Health Career Association NHA). *This is a PROVISIONAL license. Students have 12 months to graduate High School and preform a minimum of thirty (30) venipunctures, ten (10) capillary sticks, and ten (10) Electrocardiograms (EKG) on live individuals. Students will then gain full certification.*

Prerequisites for acquiring credential or certificate: Candidate must:

- Obtain certification in CPR, AED, First Aid Certified (preferred through American Heart
 - Association: Basic Life Support (BLS) for Health Care Providers (HCP);
- Complete full accredited Nursing Assistant Training Program & obtain R.I. State CNA Licensure
 - Some states require CNA licensing prior to becoming certified as a Patient Care Technician *;
- Complete a full Patient Care Technician accredited program and successfully take the related exam (online/written) with an associated fee of \$149.00.

Benefits of this level of achievement in job market: Many CPCTs use their knowledge and training as a stepping-stone toward becoming a LPN or RN. The NHA's CPCT certification provides a foundation for future training, and it can lead to additional employment opportunities in the health care field (Example: CNA Level II at R.I. Hospital). This credential is authorized by the NHA and is nationally recognized.

Job Outlook - Employment of nursing assistants and orderlies is projected to grow 17 percent from 2014 to 2024, much faster than the average for all occupations. Because of the growing elderly population, many nursing assistants and orderlies will be needed to assist and care for these patients.

Pay – The most recent Rhode Island Labor Market Information for this profession dates from May 2015 and the entry-level wage for nursing assistants and orderlies at that time was \$25,022.00 (\$12.03 per hour).

* The required minimum of total hours for the Patient Care Technician is 300. The number of hours for each topic is recommended and can be adjusted to suit the needs of the specific program.

GWB Priority Sector: Healthcare

Career Field: Community Health Worker

Skills/knowledge needed to be prepared for entry-level work plus related administrative duties that may include but are not limited to:

1. Identify and document needs and health topics relevant to the priority population;
2. Adapt outreach strategies based on population, venue, behavior or identified risks that are appropriate to a given population and its self-determined concerns;
3. Identify basic geographic and structural features that define, support and inhibit outreach in the community;
4. Engage clients in ways that establish trust and rapport with them and their families;
5. Create a non-judgmental atmosphere in interactions with clients and their families;
6. Identify personal safety issues and possible responses to potentially dangerous situations;
7. Document and help create networks and establish partnerships and linkages with other community health workers and organizations for the purpose of care coordination and enhancing resources.

Required Curriculum: District decision

Core Competency: Outreach Methods and Strategies

1. Individual and Community Assessment
2. Effective Communication
3. Cultural Responsiveness and Mediation
4. Education to Promote Healthy Behavior Change
5. Care Coordination and System Navigation
6. Use of Public Health Concepts and Approaches
7. Advocacy and Community Capacity Building
8. Documentation
9. Professional Skills and Conduct

Clinical Duties (may include, but not limited to):

- Helping individuals, families, groups and communities develop their capacity and access to resources, including health insurance, food, housing, quality care and health information;
- Facilitating communication and client empowerment in interactions with health care/social service systems;
- Helping health care and social service systems become culturally relevant and responsive to their service population;
- Helping people understand their health condition(s) and develop strategies to improve their health and well-being;
- Helping to build understanding and social capital to support healthier behaviors and lifestyle choices;
- Delivering health information using culturally appropriate terms and concepts;
- Linking people to health care/social service resources;
- Providing informal counseling, support and follow-up;
- Advocating for local health needs;
- Providing health services, such as monitoring blood pressure and providing first aid;
- Making home visits to chronically ill patients, pregnant women and nursing mothers, individuals at high risk of health problems and the elderly;
- Translating and interpreting for clients and health care/social service providers.

Expected industry credential(s) and /or certificate(s) granted upon successful completion of the program (if applicable): At this time there is voluntary certification. Eventually this position has potential to become a certified position to work with health care providers. The certification programs usually last 18 months and may require additional postsecondary training.

Benefits of this level of achievement in the job market:

Throughout the United States, the community health worker field is growing, both in interest and demand, yet the practice lacks definition, standards and openly available training opportunities. The field is also rapidly expanding into new areas of health and community wellness.

Job Outlook - Employment of health educators and community health workers is projected to grow 13 percent from 2014 to 2024, faster than the average for all occupations. Growth will be driven by efforts to improve health outcomes and to reduce healthcare costs by teaching people healthy habits and behaviors and explaining how to use available healthcare services.

Pay – The most recent Rhode Island Labor Market Information for this profession dates from May 2015 and the entry-level wage for Community Health Workers at that time was \$35,277.00 (\$16.96 per hour).

GWB Priority Sector: Healthcare

Career Field: Dental Hygienist

Skills/knowledge needed to be prepared for entry-level work: Administrative Duties (may include, but not limited to): Dental hygienists need to be adept at using both hand and power tools to remove tartar, stains and plaque from teeth and to apply sealants, polishes and fluoride treatments. This requires a certain level of hand-eye coordination to manipulate the instruments properly. It also requires a steady hand. In addition, hygienists must be familiar with the proper use of X-ray equipment to evaluate tooth or jaw problems.

Medicine and Dentistry — Knowledge of the information and techniques needed to diagnose and treat human injuries, diseases, and deformities. This includes symptoms, treatment alternatives, drug properties and interactions, and preventive health-care measures. See more occupations related to this knowledge.

Customer and Personal Service — Knowledge of principles and processes for providing customer and personal services. This includes customer needs assessment, meeting quality standards for services, and evaluation of customer satisfaction. See more occupations related to this knowledge.

Required Curriculum:

Clinical Duties (may include, but not limited to):

- Clean calcareous deposits, accretions, and stains from teeth and beneath margins of gums, using dental instruments. See more occupations related to this task;
- Record and review patient medical histories. See more occupations related to this task;
- Examine gums, using probes, to locate periodontal recessed gums and signs of gum disease. See more occupations related to this task;
- Feel and visually examine gums for sores and signs of disease. See more occupations related to this task;
- Expose and develop x-ray film.

Expected industry credential(s) and /or certificate(s) granted upon successful completion of the program (if applicable): Dental Hygiene License

Prerequisites for acquiring credential or certificate

Licensure is granted by each individual state. Dental hygienists practice in accordance with requirements of individual state dental practice acts.

In virtually every state, several steps are required before a license can be granted:

- Graduation from an accredited dental hygiene program;
- Successful completion of the written National Board Dental Hygiene Examination;
- Successful completion of a regional or state clinical board examination.

Once these steps have been completed, an applicant for licensure must then contact the state licensing authority in the state where he/she wishes to practice. As licensing requirements vary from state to state, it is necessary to contact each licensing authority in a given state for its specific application requirements and procedures.

Requirements for a dental hygienist license in Rhode Island include transcripts from an accredited institution (Associates @ CCRI) that proves the applicant has earned a degree in dental hygiene, a birth certificate, a passport-sized photograph, and passing scores in the National Board and regional board exams.

Benefits of this level of achievement in the job market: Employment of dental hygienists is projected to grow 33 percent from 2012 to 2022, much faster than the average for all occupations. Ongoing research linking oral
RIDE – May 7, 2018

health to general health will continue to spur demand for preventative dental services, which are often provided by dental hygienists.

Job Outlook - Employment of dental hygienists is projected to grow 19 percent from 2014 to 2024, much faster than the average for all occupations. Ongoing research linking oral health to general health will continue to spur demand for preventive dental services, which are provided by dental hygienists.

Pay – The most recent Rhode Island Labor Market Information for this profession dates from May 2015 and the entry-level wage for Dental Hygienists at that time was \$73,902.00 (\$32.53 per hour).

GWB Priority Sector: Healthcare

Career Field: Emergency Medical Responder

Skills/ knowledge needed to be prepared for entry-level work:

1. Use knowledge of the EMS system, safety/well-being of the EMR, and medical/legal issues at the scene of an emergency while awaiting a higher level of care;
2. Have awareness of local public health resources and the role of EMR personnel in public health emergencies;
3. Use simple medical and anatomical terms;
4. Use simple knowledge of the anatomy and function of the upper airway, heart, vessel, blood, lungs, skin, muscles and bones the foundation of emergency care;
5. Use simple knowledge of age-related differences to assess and care for patients;
6. Apply knowledge (fundamental depth, foundational breadth) of general anatomy and physiology to assure patent airway, adequate mechanical ventilation and respiration while awaiting additional EMS response for patients of all ages;
7. Use simple knowledge of shock and respiratory compromise to respond to life threats;
8. Use assessment information to recognize shock, respiratory failure or arrest, and cardiac arrest based on assessment findings, and manage the emergency while awaiting additional emergency response;
9. Conduct Patient assessment;
10. Conduct primary assessment;
11. Take history and vital signs;
12. Use scene information and simple patient assessment findings to identify and manage immediate life threats and injuries within the scope of practice of the EMR;
13. Practice principles of communicating with patients in a manner that achieves a positive relationship;
14. Recognize and manage life threats based on assessment findings of a patient with a medical emergency while awaiting additional emergency response;
15. Identify and categorize trauma patients and activate the appropriate trauma system approach;
16. Use knowledge of EMR systems to recognize and manage life threats related to trauma/shock, resuscitation, and trauma such as bleeding and shock, chest and abdominal emergencies, soft tissue injuries, injuries to head and spine, musculoskeletal injuries, and environmental emergencies;
17. Recognize and manage life threats based on assessment findings for a patient with special needs such as obstetrics and neonatal care, pediatric emergencies, geriatric patients, and patients with special challenges and situations while awaiting additional emergency response;
18. Use knowledge of operational roles and responsibilities to ensure patient, public, and personal safety.

Expected industry credential (s) and/or certificate(s) granted upon successful completion of the program (if applicable):

1. First Aid;
2. CPR/AED;
3. Certificate of Completion (meeting all standards).

Prerequisites for acquiring credential or certificate: The students, who wish to become a skilled EMT in Rhode Island, have to go through an EMT training program and may have to provide a Bureau of Criminal Identification (BCI) report. Students must be 18 years old with a high school diploma.

Benefits of this level of achievement in job market: This course is a preparatory course to the EMT course and instructs students in basic knowledge, application, and skills of an emergency medical responder. Students who successfully complete this course would be able to volunteer as a medical responder and/or gain employment where CPR, First Aid, and/or AED certificates are required.

Job Outlook - Employment of emergency medical technicians (EMTs) and paramedics is projected to grow 24 percent from 2014 to 2024, much faster than the average for all occupations. Emergencies, such as car crashes, natural disasters, and acts of violence, will continue to create demand for EMTs and paramedics.

Pay – The most recent Rhode Island Labor Market Information for this profession dates from May 2015 and the entry-level wage for Emergency Medical Responder at that time was \$28,662.00 (\$13.78 per hour).

GWB Priority Sector: Healthcare

Career Field: Pharmacy Technician

Skills/ knowledge needed to be prepared for entry-level work: Upon completion of this high school Pharmacy Technician program, the candidate is expected to know and be able to:

Retail Pharmacy Technician duties:

1. Assist customers who are dropping off or picking up prescription orders;
2. Enter prescription orders into the computer;
3. Create a profile of the patient's health and insurance information in the computer or update the patient's profile;
4. Communicate with insurance carriers to obtain payment for prescription claims;
5. Complete weekly distribution center medication orders, place orders on shelves, and verify all associated paperwork;
6. Assist the pharmacist with filling and labeling prescriptions;
7. Prepare the pharmacy for inventory;
8. Screen telephone calls for the pharmacist;
9. Prepare bulk packages;
10. Compound oral solutions, ointments and creams.

Hospital Pharmacy Technician duties:

1. Rotate through all work areas of the pharmacy;
2. Transport medications, drug-delivery devices, and other pharmacy equipment from the pharmacy to nursing units and clinics;
3. Pick up copies of automated medication administration records, and unused medications from the nursing units and return them to the pharmacy;
4. Fill patient medication cassettes and nursing unit automated pyxis systems;
5. Prepare medications and supplies for dispensing, including: prepackaged bulk medications, compounding ointments, creams, oral solutions, and other medications, preparing chemotherapy agents, compounding total parenteral nutrition solutions, compounding large volume intravenous;
6. Prepare inventories, order drugs and supplies from the storeroom; receive drugs, and stock shelves in various pharmacy locations;
7. Screen telephone calls.
8. Assist in training new employees;
9. Assist other pharmacy technicians.

Required Curriculum: District decision

Expected industry credential (s) and/or certificate(s) granted upon successful completion of the program (if applicable): Certified Pharmacy Technician (CPhT)

Prerequisites for acquiring credential or certificate: Upon COMPLETION of high school/or GED equivalent, over age of 18, a candidate is eligible to sit for the certification examination. (*Post high school eligible*). Candidate must also obtain state/federal background checks. *At this time, there are no required theory/clinical hours to sit for examination.* Candidate must meet the above criteria to apply and take the examination. However, it is recommended that candidates have exposure in the pharmacy area or training to gain knowledge needed to pass the examination.

Benefits of this level of achievement in job market: Obtaining the Pharmacy Technician licensure allows the candidate to succeed in entry level retail or hospital pharmacies. The candidate often continues their education within the Pharmacy sector becoming a Pharmacist while working as a Pharmacy Technician. This credential is authorized by the NHA (National Health Career Association) and Pharmacy Technician Certification Board (PTCB) and is recognized nationally.

Job Outlook - Employment of pharmacy technicians is projected to grow 9 percent from 2014 to 2024, faster than the average for all occupations. Increased demand for prescription medications will lead to more demand for pharmaceutical services.

Pay – The most recent Rhode Island Labor Market Information for this profession dates from May 2015 and the entry-level wage for Medical Assistant at that time was \$25,459.00 (\$12.24per hour).

GWB Priority Sector: Hospitality & Tourism

Career Field: Culinary – Line Cook

Skills/Knowledge needed to be prepared for entry-level work:

- Knife Skills
- Customer Service
- Food Safety Management
 - Proper food storage and handling techniques
 - Clean food preparation areas, facilities or equipment
- Cost Control
- Culinary Techniques
- Purchasing and inventory
- Marketing and the menu
 - Knowledge of raw materials
 - Techniques for maximizing the effective manufacture and distribution of goods
 - Planning menu options
- Accountability
- Dependability and presentation
- Communication Skills
- Use of computers, POS systems, cash registers
- Teamwork Skills

Expected industry credential(s) or certificate(s) granted upon career and technical education program completion (if applicable):

- American Culinary Federation (ACF) accreditation for culinary education (ACF)
- ProStart National Certificate of Achievement (COA)
- ServSafe Food Safety Manager Certification
- ServSafe Allergen Training Certification

Prerequisites for acquiring a ProStart COA credential or certificate: Successful completion of Year One and Year Two Exams. Students must obtain a paid or un-paid internship and complete 400 hours of work experience and demonstrate proficiency on more than 50 workplace competencies.

Prerequisite for acquiring a ServSafe Food Safety Manager Certification and ServSafe Allergen Training: State of RI Requirements; Successful completion of 15 hours of classroom training. Students must receive a 75% or higher on the exam to become certified. Once the student is certified, they must register with the state of Rhode Island Department of Health. This certification is valid for 3 years, statewide. Every 3 years, the student must re-certify by taking a 6-hour refresher course and then resubmit with the DOH. If the student would like to maintain their national certification, the student must take the course and exam every 5 years. The state of RI recognizes the allergen training covered in the ServSafe Food Safety Manager Training as being certified. Other states, however, require a separate online Allergen Training.

Benefits of this level of achievement in job market: The ProStart Program was developed by The National Restaurant Association to meet industry needs. It is offered in all 50 states and U.S. Military bases around the world. ProStart Certification prepares graduates with the necessary skills to attain entry-level employment in the

foodservice/culinary industry. Also, the postsecondary benefit is that top post-secondary schools in the nation recognize the ProStart COA and award students with college credits, advanced placement and/or credit for work experience.

Job Outlook* - Overall employment of cooks is projected to grow 4 percent from 2014 to 2024, slower than the average for all occupations. Job opportunities will result from the combination of employment growth and the need to replace workers who leave the occupation.

Pay** – The most recent Rhode Island Labor Market Information for this profession dates from May 2015 and the entry-level wage for Line Cook at that time was \$20,821.00 (\$10.01 per hour).

Sources:

National Restaurant Association, www.onetonline.org

* US Department of Labor; Bureau of Labor Statistics; *Occupational Outlook Handbook*

** RI Department of Labor & Training; Labor Market Information; Occupational Employment Statistics

GWB Priority Sector: Hospitality & Tourism

Career Field: Restaurant Operations - Server

Skills/Knowledge needed to be prepared for entry-level work:

- Customer and Personal Service
 - Assessing customer needs
 - Meeting quality standards for services
 - Evaluating customer satisfaction
- Food Safety Management
 - Proper food handling techniques
- Cost Control
- Marketing
- Accountability
- Dependability and presentation
- Communication Skills
 - Active Listening
 - Service Orientation
 - Social Perceptiveness
- Use of computers, POS systems, cash registers
- Teamwork Skills

Expected industry credential(s) or certificate(s) granted upon career and technical education program completion (if applicable):

- American Culinary Federation (ACF) accreditation for culinary education (ACF)
- ProStart National Certificate of Achievement (COA)
- ServSafe Food Safety Manager Certification
- ServSafe Allergen Training Certification
- ServSafe Alcohol Training & Certification

Prerequisites for acquiring ProStart COA credential or certificate: Successful completion of Year One and Year Two Exams. Students must obtain a paid or un-paid internship and complete 400 hours of work experience and demonstrate proficiency on more than 50 workplace competencies.

Prerequisite for acquiring a ServSafe Food Safety Manager Certification and ServSafe Allergen Training: State of RI Requirements; Successful completion of 15 hours of classroom training. Students must receive a 75% or higher on the exam to become certified. Once the student is certified, they must register with the state of Rhode Island Department of Health. This certification is valid for 3 years, statewide. Every 3 years, the student must re-certify by taking a 6-hour refresher course and then resubmit with the DOH. If the student would like to maintain their national certification, the student must take the course and exam every 5 years. The state of RI recognizes the allergen training covered in the ServSafe Food Safety Manager Training as being certified. Other states, however, require a separate online Allergen Training.

Prerequisite for acquiring a ServSafe Alcohol Training and Certification: Successful completion of 2-hour training in ServSafe Alcohol Training. Students must obtain a 75% on the exam to obtain their certification. Any person in the state of RI who sells or serves alcoholic beverages, valet workers, and supervisors overseeing such

RIDE – May 7, 2018

persons, shall be certified in Alcohol Training within 60 days of beginning their employment. Certifications must be renewed every 3 years.

Benefits of this level of achievement in job market: The ProStart Program was developed by The National Restaurant Association to meet industry needs. It is offered in all 50 states and U.S. Military bases around the world. ProStart Certification prepares graduates with the necessary skills to attain entry-level employment in the foodservice/culinary industry. Also, the postsecondary benefit is that top post-secondary schools in the nation recognize the ProStart COA and award students with college credits, advanced placement and/or credit for work experience.

Sources: National Restaurant Association, www.onetonline.org

GWB Priority Sector: Hospitality & Tourism

Career Field: Hotel Operations – Hotel Phone Operator

Skills/Knowledge needed to be prepared for entry-level work:

- Customer and Personal Service
 - Assessing customer needs
 - Meeting quality standards for service
 - Active Listening
- Operating Property Management Systems
- Problem resolution skills
- Sales and Marketing Skills
 - Knowledge of principles and methods for showing, promoting and selling products and services
 - Sales techniques and control systems
- Effective Communication Skills
 - Oral Expression
 - Speech Clarity
 - Persuasion
- Multi-Tasking Skills
- Administration and Management
 - Strategic Planning, resource allocation, and coordination of people and resources
- Proper Appearance
- Accountability and Reliability
- Teamwork
 - The ability to work with various departments throughout the property

Expected industry credential(s) or certificate(s) granted upon career and technical education program completion (if applicable):

- Certified Hospitality & Tourism Management Professional Certification (CHTMP)
- Certified Guest Service Professional (CGSP)

Prerequisites for acquiring credential or certificate: Successful completion of both HTMP Year 1 and HTMP Year 2 final exams. Students must complete 100 hours of work experience in a qualifying position within the hospitality industry, paid or unpaid.

Prerequisites for acquiring Guest Service Professional credential: Students must complete a three-hour online training. Upon completion of the online training, students will be able to take the exam. There is no on-site workplace requirement.

Benefits of this level of achievement in job market: The HTMP program was developed by the American Hotel Lodging Association based upon industry needs. CHTMP certification prepares graduates with the necessary skills to attain entry-level employment in the hospitality industry. Also, the postsecondary benefit is that the learning objectives can be compared to hospitality management courses at four-year and two-year post-secondary schools. Upon successful completion of both year-end exams, the student will be able to articulate into a school that teaches Education Institute courses or uses Educational Institute textbooks. This encompasses over 1,500 schools around the world.

Sources: National Restaurant Association, www.onetonline.org

RIDE – May 7, 2018

GWB Priority Sector: Hospitality & Tourism

Career Field: Tourism - Amusement and Recreation Attendant

Skills/Knowledge needed to be prepared for entry-level work:

- Customer and Personal Service
 - Assessing customer needs
 - Meeting quality standards for service
 - Active Listening
 - Service Orientation
 - Social Perceptiveness
- Problem resolution skills
- Computer Skills
 - Ability to complete administrative and clerical procedures and systems
- Effective Communication Skills
 - Oral Expression
 - Speech Clarity
 - Persuasion
- Multi-Tasking Skills
- Administration and Management
 - Strategic Planning, resource allocation, and coordination of people and resources
- Proper Appearance
- Accountability and Reliability

Expected industry credential(s) or certificate(s) granted upon career and technical education program completion (if applicable):

- Certified Hospitality & Tourism Management Professional Certification (CHTMP)
- Certified Guest Service Professional (CGSP)
- Certified Front Desk Representative

Prerequisites for acquiring credential or certificate: Successful completion of both HTMP Year 1 and HTMP Year 2 final exams. Students must complete 100 hours of work experience in a qualifying position within the hospitality industry, paid or unpaid.

Prerequisites for acquiring Guest Service Professional credential: Students must complete a three-hour online training. Upon completion of the online training, students will be able to take the exam. There is no on-site workplace requirement.

Prerequisites for acquiring Front Desk Representative credential: Students must complete 4-8 hours of online training. Upon completion of the online training, students will be able to take the exam. There is no on-site workplace requirement.

Benefits of this level of achievement in job market: The HTMP program was developed by the American Hotel Lodging Association based upon industry needs. CHTMP certification prepares graduates with the necessary skills to attain entry-level employment in the hospitality industry. Also, the postsecondary benefit is that the learning objectives can be compared to hospitality management courses at four-year and two-year post-secondary schools. Upon successful completion of both year-end exams, the student will be able to articulate into a school that teaches Education Institute courses or uses Educational Institute textbooks. This encompasses over 1,500 schools around the world.

Sources: National Restaurant Association, www.onetonline.org

RIDE – May 7, 2018

GWB Priority Sector: Hospitality & Tourism

Career Field: Tourism – Tour Guide

Skills/Knowledge needed to be prepared for entry-level work:

- Customer and Personal Service
 - Assessing customer needs
 - Meeting quality standards for service
 - Active Listening
 - Service Orientation
 - Social Perceptiveness
- Problem resolution skills
- Effective Communication Skills
 - Oral Expression
 - Speech Clarity
 - Persuasion
- Multi-Tasking Skills
- Administration and Management
 - Strategic Planning, resource allocation, and coordination of people and resources
- Proper Appearance
- Accountability and Reliability

Expected industry credential(s) or certificate(s) granted upon career and technical education program completion (if applicable):

- Certified Hospitality & Tourism Management Professional Certification (CHTMP)
- Certified Guest Service Professional (CGSP)
- Certified Front Desk Representative (CFDR)

Prerequisites for acquiring credential or certificate: Successful completion of both HTMP Year 1 and HTMP Year 2 final exams. Students must complete 100 hours of work experience in a qualifying position within the hospitality industry, paid or unpaid.

Prerequisites for acquiring Guest Service Professional credential: Students must complete a three-hour online training. Upon completion of the online training, students will be able to take the exam. There is no on-site workplace requirement.

Prerequisites for acquiring Front Desk Representative credential: Students must complete 4-8 hours of online training. Upon completion of the online training, students will be able to take the exam. There is no on-site workplace requirement.

Benefits of this level of achievement in job market: The HTMP program was developed by the American Hotel Lodging Association based upon industry needs. CHTMP certification prepares graduates with the necessary skills to attain entry-level employment in the hospitality industry. Also, the postsecondary benefit is that the learning objectives can be compared to hospitality management courses at four-year and two-year post-secondary schools. Upon successful completion of both year-end exams, the student will be able to articulate into a school that teaches Education Institute courses or uses Educational Institute textbooks. This encompasses over 1,500 schools around the world.

Sources: National Restaurant Association, www.onetonline.org

RIDE – May 7, 2018

Priority Sector: Hospitality & Tourism

Career Field: Culinary – Prep Cook

Skills/Knowledge needed to be prepared for entry-level work:

- Knife Skills
- Customer Service
- Food Safety Management
 - Proper food storage and handling techniques
 - Clean food preparation areas, facilities or equipment
- Cost Control
- Culinary Techniques
- Purchasing and inventory
- Marketing and the menu
 - Knowledge of raw materials
 - Techniques for maximizing the effective manufacture and distribution of goods
 - Planning menu options
- Accountability
- Dependability and presentation
- Communication Skills
- Use of computers, POS systems, cash registers
- Teamwork Skills

Expected industry credential(s) or certificate(s) granted upon career and technical education program completion (if applicable):

- American Culinary Federation (ACF) accreditation for culinary education (ACF)
- ProStart National Certificate of Achievement (COA)
- ServSafe Food Safety Manager Certification
- ServSafe Allergen Training Certification

Prerequisites for acquiring ProStart COA credential or certificate: Successful completion of Year One and Year Two Exams. Students must obtain a paid or un-paid internship and complete 400 hours of work experience and demonstrate proficiency on more than 50 workplace competencies.

Prerequisite for acquiring a ServSafe Food Safety Manager Certification and ServSafe Allergen Training: State of RI Requirements; Successful completion of 15 hours of classroom training. Students must receive a 75% or higher on the exam to become certified. Once the student is certified, they must register with the state of Rhode Island Department of Health. This certification is valid for 3 years, statewide. Every 3 years, the student must re-certify by taking a 6-hour refresher course and then resubmit with the DOH. If the student would like to maintain their national certification, the student must take the course and exam every 5 years. The state of RI recognizes the allergen training covered in the ServSafe Food Safety Manager Training as being certified. Other states, however, require a separate online Allergen Training.

Benefits of this level of achievement in job market: The ProStart Program was developed by The National Restaurant Association to meet industry needs. It is offered in all 50 states and U.S. Military bases around the world. ProStart Certification prepares graduates with the necessary skills to attain entry-level employment in the foodservice/culinary industry. Also, the postsecondary benefit is that top post-secondary schools in the nation recognize the ProStart COA and award students with college credits, advanced placement and/or credit for work experience.

Sources: National Restaurant Association, www.onetonline.org

RIDE – May 7, 2018

GWB Priority Sector: Hospitality & Tourism

Career Field: Hotel Operations – Room Attendant

Skills/Knowledge needed to be prepared for entry-level work:

- Customer and Personal Service
 - Assessing customer needs
 - Meeting quality standards for service
 - Active Listening
 - Provide quality and timely service
- Respond to emergencies
 - Security policies and procedures; proper reporting
- Problem resolution skills
 - Respond and resolve requests and complaints by guests.
- Effective Communication Skills
 - Oral Expression
 - Oral Comprehension
 - Speech Clarity
- Ensure security of guest belongings
- Industry Terminology
- Proper Appearance
- Accountability and Reliability
 - Attention to detail
 - Organization and time management skills
- Understanding proper cleaning techniques and procedures
- Teamwork
 - The ability to remain flexible in job duties and assignments
 -

Expected industry credential(s) or certificate(s) granted upon career and technical education program completion (if applicable):

- Certified Hospitality & Tourism Management Professional Certification (CHTMP)
- Certified Guest Service Professional (CGSP)
- Certified Guestroom Attendant (CGA)

Prerequisites for acquiring CHTMP credential or certificate: Successful completion of both HTMP Year 1 and HTMP Year 2 final exams. Students must complete 100 hours of work experience in a qualifying position within the hospitality industry, paid or unpaid.

Prerequisites for acquiring Guest Service Professional credential: Students must complete a three-hour online training. Upon completion of the online training, students will be able to take the exam. There is no on-site workplace requirement.

Prerequisites for acquiring Guestroom Attendant credential: Students must complete 4-8 hours of online training. Upon completion of the online training, students will be able to take the exam. There is no on-site workplace requirement.

Benefits of this level of achievement in job market: The HTMP program was developed by the American Hotel Lodging Association based upon industry needs. CHTMP certification prepares graduates with the necessary skills to attain entry-level employment in the hospitality industry. Also, the postsecondary benefit is that the learning objectives can be compared to hospitality management courses at four-year and two-year post-secondary schools. Upon successful completion of both year-end exams, the student will be able to articulate into a school that teaches Education Institute courses or uses Educational Institute textbooks. This encompasses over 1,500 schools around the world.

Sources: American Hotel and Lodging Association, TPG job descriptions; www.onetonline.org;

GWB Priority Sector: Hospitality & Tourism

Career Field: Hotel Operations – Laundry Attendant

Skills/Knowledge needed to be prepared for entry-level work:

- Customer and Personal Service
 - Assessing customer needs
 - Meeting quality standards for service
 - Active Listening
 - Provide quality and timely service
- Respond to emergencies
 - Security policies and procedures; proper reporting
- Problem resolution skills
 - Respond and resolve requests and complaints by guests.
- Effective Communication Skills
 - Oral Expression
 - Oral Comprehension
 - Speech Clarity
- Industry Terminology
- Proper Appearance
- Accountability and Reliability
 - Attention to detail
 - Organization and time management skills
- Understanding proper cleaning techniques and procedures
- Teamwork
 - The ability to remain flexible in job duties and assignments

Expected industry credential(s) or certificate(s) granted upon career and technical education program completion (if applicable):

- Certified Hospitality & Tourism Management Professional Certification (CHTMP)
- Certified Guest Service Professional (CGSP)

Prerequisites for acquiring CHTMP credential or certificate: Successful completion of both HTMP Year 1 and HTMP Year 2 final exams. Students must complete 100 hours of work experience in a qualifying position within the hospitality industry, paid or unpaid.

Prerequisites for acquiring Guest Service Professional credential: Students must complete a three-hour online training. Upon completion of the online training, students will be able to take the exam. There is no on-site workplace requirement.

Benefits of this level of achievement in job market: The HTMP program was developed by the American Hotel Lodging Association based upon industry needs. CHTMP certification prepares graduates with the necessary skills to attain entry-level employment in the hospitality industry. Also, the postsecondary benefit is that the learning objectives can be compared to hospitality management courses at four-year and two-year post-secondary schools. Upon successful completion of both year-end exams, the student will be able to articulate into a school that teaches Education Institute courses or uses Educational Institute textbooks. This encompasses over 1,500 schools around the world.

Sources: American Hotel and Lodging Association, TPG job descriptions, www.onetonline.org

RIDE – May 7, 2018

GWB Priority Sector: Hospitality & Tourism

Career Field: Hotel Operations – Guest Room Service Agent

Skills/Knowledge needed to be prepared for entry-level work:

- Customer and Personal Service
 - Assessing customer needs, problem resolution
 - Meeting quality standards for service
 - Active Listening
 - Positive and Professional Attitude
- Operating phone system and computer systems
 - The ability to answer guest calls
 - Operating fax, email and Property Management Systems
- Respond to emergencies
 - Security policies and procedures
 - Be the liaison between the hotel and emergency services
- Effective Communication Skills
 - Oral Expression
 - Oral Comprehension
 - Speech Clarity
- Multi-Tasking Skills
- Industry Terminology
- Proper Appearance
- Accountability and Reliability
- Teamwork
 - The ability to work with various departments throughout the property
 -

Expected industry credential(s) or certificate(s) granted upon career and technical education program completion (if applicable):

- Certified Hospitality & Tourism Management Professional Certification (CHTMP)
- Certified Guest Service Professional (CGSP)
- Certified Front Desk Representative

Prerequisites for acquiring CHTMP credential or certificate: Successful completion of both HTMP Year 1 and HTMP Year 2 final exams. Students must complete 100 hours of work experience in a qualifying position within the hospitality industry, paid or unpaid.

Prerequisites for acquiring Guest Service Professional credential: Students must complete a three-hour online training. Upon completion of the online training, students will be able to take the exam. There is no on-site workplace requirement.

Prerequisites for acquiring Front Desk Representative credential: Students must complete 4-8 hours of online training. Upon completion of the online training, students will be able to take the exam. There is no on-site workplace requirement.

Benefits of this level of achievement in job market: The HTMP program was developed by the American Hotel Lodging Association based upon industry needs. CHTMP certification prepares graduates with the necessary skills to attain entry-level employment in the hospitality industry. Also, the postsecondary benefit is that the learning objectives can be compared to hospitality management courses at four-year and two-year post-secondary schools. Upon successful completion of both year-end exams, the student will be able to articulate into a school that teaches Education Institute courses or uses Educational Institute textbooks. This encompasses over 1,500 schools around the world.

Sources: American Hotel and Lodging Association, www.onetonline.org

GWB Priority Sector: Hospitality & Tourism

Career Field: Tourism – Travel Agent

Skills/Knowledge needed to be prepared for entry-level work:

- Customer and Personal Service
 - Assessing customer needs
 - Meeting quality standards for service
 - Active Listening
 - Service Orientation
 - Social Perceptiveness
- Problem resolution skills
- Effective Communication Skills
 - Oral Expression
 - Speech Clarity
 - Persuasion
- Multi-Tasking Skills
- Geography knowledge
- Knowledge of principles and methods for moving people or goods by air, rail, sea or road
- Administration and Management
 - Strategic Planning, resource allocation, and coordination of people and resources
- Proper Appearance
- Accountability and Reliability

Expected industry credential(s) or certificate(s) granted upon career and technical education program completion (if applicable):

- Certified Hospitality & Tourism Management Professional Certification (CHTMP)
- Certified Guest Service Professional (CGSP)
- Certified Front Desk Representative

Prerequisites for acquiring CHTMP credential or certificate: Successful completion of both HTMP Year 1 and HTMP Year 2 final exams. Students must complete 100 hours of work experience in a qualifying position within the hospitality industry, paid or unpaid.

Prerequisites for acquiring Guest Service Professional credential: Students must complete a three-hour online training. Upon completion of the online training, students will be able to take the exam. There is no on-site workplace requirement.

Prerequisites for acquiring Front Desk Representative credential: Students must complete 4-8 hours of online training. Upon completion of the online training, students will be able to take the exam. There is no on-site workplace requirement.

Benefits of this level of achievement in job market: The HTMP program was developed by the American Hotel Lodging Association based upon industry needs. CHTMP certification prepares graduates with the necessary skills to attain entry-level employment in the hospitality industry. Also, the postsecondary benefit is that the learning objectives can be compared to hospitality management courses at four-year and two-year post-secondary schools. Upon successful completion of both year-end exams, the student will be able to articulate into a school that teaches Education Institute courses or uses Educational Institute textbooks. This encompasses over 1,500 schools around the world.

Sources: National Restaurant Association, www.onetonline.org

RIDE – May 7, 2018

GWB Priority Sector: Hospitality & Tourism

Career Field: Culinary - Baker

Skills/Knowledge needed to be prepared for entry-level work:

- Knife Skills
 - Use of cutlery, molds, commercial ovens and forming machines
- Customer Service
- Food Safety Management
 - Proper food storage and handling techniques
 - Clean food preparation areas, facilities or equipment
- Cost Control
- Culinary Techniques
- Purchasing and inventory
- Marketing and the menu
 - Knowledge of raw materials
 - Techniques for maximizing the effective manufacture and distribution of goods
 - Planning menu options
- Accountability
- Dependability and presentation
- Communication Skills
- Use of computers, POS systems, cash registers
- Teamwork Skills

Expected industry credential(s) or certificate(s) granted upon career and technical education program completion (if applicable):

- ProStart National Certificate of Achievement (COA)
- ServSafe Food Safety Manager Certification
- ServSafe Allergen Training Certification

Prerequisites for acquiring ProStart COA credential or certificate: Successful completion of Year One and Year Two Exams. Students must obtain a paid or un-paid internship and complete 400 hours of work experience and demonstrate proficiency on more than 50 workplace competencies.

Prerequisite for acquiring a ServSafe Food Safety Manager Certification and ServSafe Allergen Training: State of RI Requirements; Successful completion of 15 hours of classroom training. Students must receive a 75% or higher on the exam to become certified. Once the student is certified, they must register with the state of Rhode Island Department of Health. This certification is valid for 3 years, statewide. Every 3 years, the student must re-certify by taking a 6-hour refresher course and then resubmit with the DOH. If the student would like to maintain their national certification, the student must take the course and exam every 5 years. The state of RI recognizes the allergen training covered in the ServSafe Food Safety Manager Training as being certified. Other states, however, require a separate online Allergen Training.

Benefits of this level of achievement in job market: The ProStart Program was developed by The National Restaurant Association to meet industry needs. It is offered in all 50 states and U.S. Military bases around the world. ProStart Certification prepares graduates with the necessary skills to attain entry-level employment in the foodservice/culinary industry. Also, the postsecondary benefit is that top post-secondary schools in the nation recognize the ProStart COA and award students with college credits, advanced placement and/or credit for work experience.

Sources: National Restaurant Association, www.onetonline.org

RIDE – May 7, 2018

GWB Priority Sector: Information Technology

Career Field: Entry-level Networking (Cisco Certified Network Associate – CCNA)

Technical Skills:

- Understand how different network technologies and tools interact to form a secure IT network.
- Explain how a computer network works and how it interacts with networked devices.
- Configure, verify and troubleshoot a switch with VLAN & interswitch communications.
- Implement an IP addressing scheme and IP Services to meet specific network requirements.
- Configure, verify and troubleshoot routing and router operations on current Cisco devices.
- Describe, setup, verify, and execute appropriate tasks for wireless local area networks (WLAN)
- Implement & support Network Address Translation (NAT) and Access Control Lists (ACLs) in various environments.
- Identify network security threats and describe threat mitigation methods & countermeasures.

Work readiness Skills:

- Excellent customer service and interpersonal skills; telephone etiquette.
- Strong oral and written communication skills (both technical and non-technical)
- Highly effective active listening skills, questioning, and issue management
- Demonstrated problem-solving skills
- Demonstrate excellent follow-through
- Team player
- Self-motivated
- Highly organized
- Commitment and willingness to continually learn new products and technologies

Expected industry credential(s) and/or certificate(s) granted upon successful completion of the program (if applicable): Cisco Certified Network Associate (CCNA) Certification; Bachelor's Degree; and/or Associates Degree. 12-18 months' work experience preferred.

Benefits of this level of achievement in job market: While this is an entry point for employment for job seekers in the Computer Networking pathway, a successful candidate is better prepared if applicant resume demonstrates a long-term internship/work experience plus some postsecondary training in computers or engineering.

Job Outlook - Employment opportunities for Information Technology show high growth (validated by the Bureau of Labor Statistics) and as of June 2016 incorporates an expanded definition of Information Technology occupations by using NAICS codes to identify high-tech industries in Rhode Island. In 2013 total employment across these more than 2,200 high-tech industry establishments was more than 20,700 workers accounting for 5.2% of Rhode Island private sector employment.* Employers are stating that Information Technology positions are difficult to fill and Labor Market Information projections demonstrate employment growth of 17% between 2012 – 2022**.

Pay – The entry-level median annual wage for CCNA is \$45,550.00 (\$21.90 per hour) in January 2016.

* *Enter IT RI, An analysis and report of in-demand IT skill sets; Bridge Technical Talent & Tech Collective.*

** *RI Department of Labor and Training Labor Market Information 2022 Occupational Outlook.*

GWB Priority Sector: Information Technology

Career Field: Entry Level Software / Web Developer

Overall Career Information

Skills/ knowledge needed to be prepared for entry-level work/postsecondary education preparation:

Able to create applications on multiple platforms and/or websites for an end-user. Needs to be versed in multiple programming languages. Skills in designing, developing, troubleshooting, documenting, and debugging software solutions are required. Web development students should understand front-end web development and back-end management and programming.

Important Qualities:

- **Collaboration skills:** Developers must be able to work in teams of two or more to accomplish a common goal/task.
- **Customer-service skills:** Developers must be patient and empathetic. Their customers will often experience unwanted behavior or request features. The developer must work with the customer throughout the entire design process.
- **Listening skills:** Developers must be able to understand the problems that their customers are describing and use that information to implement a solution.
- **Problem-solving skills:** Developers must be able to test, troubleshoot, and debug syntax and semantic errors in software.
- **Speaking skills:** Developers must describe their solutions to their customers in a way that a nontechnical person can understand.
- **Writing skills:** Strong writing skills are useful to developers while preparing instructions, generating design documentation and end-user documentation, and emailing responses to colleagues and customers.
- **Creativity:** Computing is a creative activity, thus developers should be creative. Creativity and computing are prominent forces in innovation; the innovations enabled by computing have had and will continue to have far-reaching impact.

What Software Developers / Web Designers Do:

Software/Web Developers write code to generate applications and web pages for an end-user; access databases and business logic servers; work with customers, designers, and content producers; test and document software; write, modify and debug software.

Work Environment:

Most Software/Web Developers have full-time work schedules; however, many do not work typical 9-to-5 jobs. Some are on call 24 hours a day, may work nights or weekends, or work from home.

Pay:

The entry level wage for a Software/Web Developer Specialist was \$39,083.00 as of May 2015 and the top pay is \$80,000. Current information can be found in the [RI Department of Labor and Training Labor Market Information Occupational Outlook](#).

Job Outlook:

Visit the US Bureau of Labor Statistics for the most [current job outlook information](#).

State & Area Data:

[Current Rhode Island information](#); Additional resources can be found at <http://www.dlt.ri.gov/lmi/>

How to Become a Software / Web Developer in Rhode Island

Rhode Island CTE Program Requirements:

Students must have a work-based learning experience documented. The requirements in this table support the information outlined above.

Earn one of the following Credentials:		Plus +	The following minimum academics:	Plus +	Work-Based Learning
NOCTI: IT Workforce Ready Credential Computer Programming OR Web Development	Precision Exam Computer Programming OR Web Development	+	4 Math	+	<p>This standard acknowledges and adopts the work-based learning standards as developed by the Governor's Workforce Board</p> <p>and</p> <p>Professional/Work place Skills (i.e., SkillsUSA Connect Curriculum)</p>
Dual/Concurrent Enrollment (Example: URI's Code.org Program) OR P-TECH	W3Schools Web Development Certifications (HTML, CSS, and JavaScript)		4 English		
College Board's AP Computer Science Principles and AP Computer Science A 3 or better on exams	Associate Android Developer Exam		3 Science		
Project Lead the Way Three consecutive Course Certificates with proficient EoC	Unity Certified Developer Exam		3 Social Studies		
Oracle Java Foundations Certified Junior Associate (Exam 1Z0-811: Java Foundations)	Oracle Database 12c Administrator Certified Associate (Pass One SQL Exam: 1Z0-071, 1Z0-061, or 1Z0-051)		IT Pathway Courses		
Microsoft Technology Associate (MTA) Certification (Examples: Exam 98-380,98-381,98-383)	Node.js Certified Developer (NCD) Exam				

Expected Industry Credential(s) and/or Certificate(s) granted upon successful completion of the CTE Program (if applicable): Due to the wide range of skills and knowledge used in different programming situations, there are many paths into this occupation. A bachelor's degree is required for some software developer and web developer positions; however, some employers will consider an associate's degree or postsecondary classes and certifications. Additionally, students can enhance their skills with related coursework, primary certifications, College Board's AP Computer Science courses, dual/concurrent enrollment, and taking advantage of available internships. Fundamental certifications in programming language and development environment will help students demonstrate mastery of skills to employers.

GWB Priority Sector: Information Technology

Career Field: Information Technology Specialist

What IT Specialists Do: IT specialists provide solutions to people and organizations who use technology. IT specialists are also responsible for the design, maintenance, and installation of computer systems, networks, servers, and other technology.

- Test and evaluate existing network systems
- Perform regular maintenance to ensure that networks operate correctly
- Troubleshoot local area networks (LANs), wide area networks (WANs), and Internet systems

Network support specialists may assist computer users through phone, email, or in-person visits. They often work under [network and computer systems administrators](#), who handle tasks that are more complex.

Work Environment: Most IT specialists have full-time work schedules; however, some may not work typical 9-to-5 jobs. Because IT is essential for businesses, some IT specialists must be available 24 hours a day. For additional work environment information, visit the [Bureau of Labor and Statistics](#).

Skills/ knowledge needed to be prepared for entry-level work/postsecondary education preparation:

Provides technical assistance to computer users plus answers questions or resolve computer problems for clients in person, or via telephone or electronically, maintain, manage, troubleshoot and upgrade computer systems and servers for performance and security related issues. Further, the work may include providing assistance concerning the use of computer hardware and software, including printing, installation, word-processing, electronic mail, minor networking and operating systems. Provide end-user support for a variety of web applications.

Work Readiness Skills:

- **Collaboration skills:** Demonstration of the ability to work in teams of two or more to accomplish a common goal/task.
- **Customer-service skills:** IT specialists must be empathetic and compassionate. They must often assist people who are frustrated with the software or hardware they are trying to use.
- **Listening skills:** IT Specialists must be able to understand the problems that their customers are describing and know when to ask questions to clarify the situation.
- **Problem-solving skills:** IT Specialists must identify both simple and complex technology issues, analyze them, and resolve them.
- **Communication skills:** IT Specialists must describe solutions to technology problems in a manner that both technical and nontechnical people can understand.
- **Writing skill:** Strong writing skills are essential in this career field. IT Specialists must be able to communicate effectively using multiple means of communication.

Expected industry credential (s) and/or certificate(s) granted upon successful completion of the program (if applicable): Because of the wide range of skills needed for IT Specialist roles, there are many paths into this occupation. While a bachelor's degree may be required for some IT Specialist positions, an associate's degree and/or postsecondary classes may be enough for others. Additionally, students can enhance their skills with related coursework, dual/concurrent enrollment and by taking advantage of internship opportunities.

Job Outlook: Employment in the IT pathway is projected to grow 11% from 2016 – 2026, faster than the average for all occupations. The IT pathway is expected to add about 88,500 new jobs, in the next 8 years in part due to a greater emphasis on cloud computing, the collection and storage of big data, more everyday items

becoming connected to the Internet in what is commonly referred to as the “Internet of things,” and the continued demand for mobile computing.

Job prospects should be favorable. There are usually clear advancement possibilities for IT support specialists, creating new job openings. Applicants with a bachelor’s degree and a strong technical background should have the best job opportunities.

Pay: The entry-level annual median salary for an IT Specialist was \$52,160 in 2016 according to the [U.S. Bureau of Labor Statistics](http://www.bls.gov).

State & Area Data: Additional resources can be found at the [US Bureau of Labor and Statistics](http://www.dlt.ri.gov/lmi/), <http://www.dlt.ri.gov/lmi/> and <http://WayToGoRI.org>.

Similar Occupations: Desktop Support Technician; Help Desk Technician; Computer Technician; Network Technician; IT Support Analyst; Systems Administrator; Systems Analyst; IT manager; Programmer

CTE Program Requirements:

Prepare for and earn ONE of the following Credentials:	Plus+	The following minimum academics:	Plus+	Work Based Learning Experience
NOCTI Computer Networking Fundamentals or Precision Exams: IT Support and Network or CompTIA IT Fundamentals and CompTIA A+	+	4 Math	+	This standard acknowledges and adopts the work-based learning standards as developed by the Governor’s Workforce Board and Professional/Workplace Skills (i.e., SkillsUSA Connect Curriculum)
CISCO CCENT (Certified Cisco Entry Network Technician) Certificate or End of Course validation letter and certificate provided by CISCO		4 English		
College Board AP Computer Science Principles or AP Computer Science A 3 or better on exams		3 Science		
Project Lead the Way Three consecutive Course Certificates with proficient End of Course		3 Social Studies		
Dual/Concurrent Enrollment (Example: CCRI Cisco OR P-TECH)		IT Pathway Courses		

GWB Priority Sector: Information Technology

Career Field: Service Desk Specialist

Technical Skills:

- Provide a single point of contact for all users of the company's infrastructure computing environment
- Understand support model and respond to questions or issues in accordance with standards and service levels
- Monitor, manage, and escalate all incidents from start to finish according to Service Level Agreements
- Receive and record all calls from users
- Directly address common requests/issues
- Provide initial assessment of all incidents
- Resolve basic incidents and requests
- Make first attempt at incident resolution and/or effectively determine when incident should be escalated to 2nd level support staff based on standards and guidelines in place
- Consult more senior members of staff before providing "ad hoc" information regarding a service incident
- Keep users informed of status and progress of incidents
- Ensure calls are properly entered into call tracking systems in timely manner
- Thorough understanding of Service Desk telephone system and call trouble ticket process
- Strong understanding of the PC client computing infrastructure
- Knowledge of Windows operating systems, MS Office products, PC configurations, PC hardware, and networking.

Work readiness Skills:

- Excellent customer service and interpersonal skills; telephone etiquette.
- Strong oral and written communication skills (both technical and non-technical)
- Highly effective active listening skills, questioning, and issue management
- Demonstrated problem-solving skills
- Demonstrate excellent follow-through
- Team player
- Self-motivated
- Highly organized
- Commitment and willingness to continually learn new products and technologies

Expected industry credential(s) and/or certificate(s) granted upon successful completion of the program (if applicable): Bachelor's Degree; and/or Associates Degree. 12-18 months' work experience preferred.

Benefits of this level of achievement in job market: While this is an entry point for employment for job seekers in the Information Technology pathway, a successful applicant is better prepared if applicant resume demonstrates a long-term internship/work experience plus some postsecondary training in Computer Studies and General Information Processing.

Job Outlook - Employment opportunities for Information Technology show high growth (validated by the Bureau of Labor Statistics) and as of June 2016 incorporates an expanded definition of Information Technology occupations by using NAICS codes to identify high-tech industries in Rhode Island. In 2013 total employment

across these more than 2,200 high-tech industry establishments was more than 20,700 workers accounting for 5.2% of Rhode Island private sector employment. * Employers are stating that Information Technology positions are difficult to fill and Labor Market Information projections demonstrate employment growth of 17% between 2012 – 2022**.

Pay – The entry-level median annual wage for Help Desk Specialist is \$26,499.00 (\$12.74 per hour) in May 2016.

** Enter IT RI, An analysis and report of in-demand IT skill sets; Bridge Technical Talent & Tech Collective.*

*** RI Department of Labor and Training Labor Market Information 2022 Occupational Outlook.*

US Dept. of Labor (USDOL) Career Cluster: Law, Public Safety & Government

(Not a RI Governor's Workforce Board Priority Sector)

Career Field: Law Enforcement

Skills/ knowledge needed to be prepared for entry-level work:

1. Knowledge of the law
2. Community relations
3. Departmental procedures
4. Leadership skills
5. Physical Stamina/Physical Strength
6. Communication Skills - Report Writing

Required curriculum: Roger Williams University, a Rhode Island Department of Education approved curriculum consists of a three/four course sequence: Introduction to Criminal Justice; Law & Society; Forensics Science. Optional Courses: Sociology and/or Psychology.

Expected industry credential (s) and/or certificate(s) granted upon successful completion of the program (if applicable):

1. National Incident Management System Training (NIMS)
2. First Aid/CPR
3. OSHA 10-General Standards
4. NOCTI – Criminal Justice
5. Certificate of Completion (meeting all standards)

Prerequisites for acquiring credential or certificate: Candidates must be U.S. citizens, usually at least 21 years old, and able to meet rigorous physical and personal qualifications.

Benefits of this level of achievement in job market: Prepares student with entry-level skills to obtain employment with certain specific Criminal Justice (Police and Corrections) agencies within Rhode Island.

Job Outlook: Employment of police and detectives is projected to grow 4 percent from 2014 to 2024, slower than the average for all occupations. The continued desire for public safety is expected to lead to new openings for officers, although demand may vary by location.

Pay: The median annual wage the profession of a police officer was \$43742.40 (\$21.03 per hour) in May 2016. The median annual wage for the profession of Correctional Officers/Bailiffs was \$42,820.00 (\$20.59 per hour) in May 2016.

GWB Priority Sector: Law, Public Safety & Government

(Governor's Workforce Board Priority – Healthcare)

Career Field: Emergency Medical Responder*

Skills/ knowledge needed to be prepared for entry-level work:

1. Use knowledge of the EMS system, safety/well-being of the EMR, and medical/legal issues at the scene of an emergency while awaiting a higher level of care;
2. Have awareness of local public health resources and the role of EMR personnel in public health emergencies;
3. Use simple medical and anatomical terms;
4. Use simple knowledge of the anatomy and function of the upper airway, heart, vessel, blood, lungs, skin, muscles and bones the foundation of emergency care;
5. Use simple knowledge of age-related differences to assess and care for patients;
6. Apply knowledge (fundamental depth, foundational breadth) of general anatomy and physiology to assure patent airway, adequate mechanical ventilation and respiration while awaiting additional EMS response for patients of all ages;
7. Use simple knowledge of shock and respiratory compromise to respond to life threats;
8. Use assessment information to recognize shock, respiratory failure or arrest, and cardiac arrest based on assessment findings, and manage the emergency while awaiting additional emergency response;
9. Conduct Patient assessment;
10. Conduct primary assessment;
11. Take history and vital signs;
12. Use scene information and simple patient assessment findings to identify and manage immediate life threats and injuries within the scope of practice of the EMR;
13. Practice principles of communicating with patients in a manner that achieves a positive relationship;
14. Recognize and manage life threats based on assessment findings of a patient with a medical emergency while awaiting additional emergency response;
15. Identify and categorize trauma patients and activate the appropriate trauma system approach;
16. Use knowledge of EMR systems to recognize and manage life threats related to trauma/shock, resuscitation, and trauma such as bleeding and shock, chest and abdominal emergencies, soft tissue injuries, injuries to head and spine, musculoskeletal injuries, and environmental emergencies;
17. Recognize and manage life threats based on assessment findings for a patient with special needs such as obstetrics and neonatal care, pediatric emergencies, geriatric patients, and patients with special challenges and situations while awaiting additional emergency response;
18. Use knowledge of operational roles and responsibilities to ensure patient, public, and personal safety.

Expected industry credential (s) and/or certificate(s) granted upon successful completion of the program (if applicable)

1. First Aid;
2. CPR/AED;
3. Certificate of Completion (meeting all standards).

Prerequisites for acquiring credential or certificate: The students, who wish to become a skilled EMT in Rhode Island, have to go through an EMT training program and may have to provide a Bureau of Criminal Identification (BCI) report. Student must be 18 years old with a high school diploma.

Benefits of this level of achievement in job market: This course is a preparatory course to the EMT course and instructs students in basic knowledge, application, and skills of an emergency medical responder. Students who successfully complete this course would be able to volunteer as a medical responder and/or gain employment where CPR, First Aid, and/or AED certificates are required.

Job Outlook - Employment of emergency medical technicians (EMTs) and paramedics is projected to grow 24 percent from 2014 to 2024, much faster than the average for all occupations. Emergencies, such as car crashes, natural disasters, and acts of violence, will continue to create demand for EMTs and paramedics.

Pay – The most recent Rhode Island Labor Market Information for this profession dates from May 2017 and the entry-level wage for Emergency Medical Responder at that time was \$36,254.40.00 (\$17.43 per hour).

***Approved standard under the Health Careers/Medical Pathways**

US Dept. of Labor (USDOL) Career Cluster: Law, Public Safety & Government

(Not a RI Governor's Workforce Board Priority Sector)

Career Field: Legal Services, Paralegal

Skills/ knowledge needed to be prepared for entry-level work:

1. Community relations
2. Departmental procedures/Organizational skills
 - a. Examine statutes, articles, constitutions, codes, etc. for the preparation of documents
 - b. Maintain files and preparing affidavits
 - c. Oversee the organization of legal volumes and ensure all volumes are accurate and up-to-date
3. Leadership skills
4. Communication Skills - Report Writing
 - a. Serve as an arbitrator or mediator between parties in dispute
 - b. Investigate facts and laws to determine causes of action for case preparation purposes

Required Curriculum: Roger Williams University, a Rhode Island Department of Education approved curriculum consists of a three/four course sequence: Introduction to Criminal Justice; Law & Society; Forensics Science. Optional Courses: Sociology and/or Psychology.

Expected industry credential (s) and/or certificate(s) granted upon successful completion of the program (if applicable): NOCTI Legal Services

Prerequisites for acquiring credential or certificate: Most paralegals and legal assistants have an associate's degree or a certificate in paralegal studies. In some cases, employers may hire college graduates with a bachelor's degree but no legal experience or specialized education and train them on the job.

Benefits of this level of achievement in job market: Employment of paralegals and legal assistants is projected to grow 8 percent from 2014 to 2024, about as fast as the average for all occupations. This occupation attracts many applicants, and competition for jobs will be strong. Experienced, formally trained paralegals with strong computer and database management skills should have the best job prospects.

Job Outlook - Employment of paralegals and legal assistants is projected to grow 8 percent from 2014 to 2024, about as fast as the average for all occupations. This occupation attracts many applicants, and competition for jobs will be strong. Experienced, formally trained paralegals with strong computer and database management skills should have the best job prospects.

Pay – The median annual wage for paralegals and legal assistants was \$49,500 (\$23.80) in May 2016.

GWB Priority Sector: Law, Public Safety & Government

(Governor's Workforce Board Priority – Defense)

Career Field: Military

Skills/ knowledge needed to be prepared for entry-level work:

Students should be exposed to the following skills or knowledge in order to prepare for entry-level work as enlisted personnel

- Personal management skills. Students will learn how to manage and organize their time and learn how to maintain a healthy balance so they can assess and respond to varied situations
- Communication skills. Students will learn how to interact with others, present information to varied audiences and respond in an appropriate manner
- Teamwork skills. Students will learn how to work collaboratively with a diverse group to solve problems, plan, and achieve the mission and vision of the organization
- Physical fitness skills. Students must engage in and be exposed to varied and multiple physical fitness activity\ies in order to participate in or support situations that may involve challenging or difficult topography.
- Healthy lifestyle skills: Students must achieve and maintain a healthy lifestyle in order to be prepared for emergency and non-emergency situations
- Critical thinking skills; Students must learn to solve problems and handle stressful situations that may arise in a combat or crisis situation
- Leadership skills. Students must develop l skills in order to plan, organize, and lead others to maintain order, respond to problematic situations and resolve crises during challenging situations.

Required Curriculum: The curriculum is dictated by the specific branch of service: Naval Science; Army Service, Marines; and Airforce.

Expected industry credential (s) and/or certificate(s) granted upon successful completion of the program (if applicable):

Students who complete a JROTC program are eligible to receive scholarship awards at ROTC participating colleges.

Students who complete a JROTC program are eligible for advanced rank and pay when enlisting in a branch of the service

Students may receive training for and certification from a variety of licenses depending on the branch of ROTC. For example, students in the Air Force JROTC program can receive training and be eligible for the pilot exam.

Prerequisites for acquiring credential or certificate: Students may opt to participate in an ROTC program at the postsecondary level if they plan to pursue an Officer pathway. Students who participate in college ROTC may receive full financial scholarship in exchange for a service commitment upon graduation.

Benefits of this level of achievement in job market: Each year, the service establishes recruiting goals to replace people completing their term of service or who are leaving the military through retirement or other for other reasons. In May of 2015, more than 2.3 million people served in the Armed Forces.

Job Outlook -

According to the U.S. Bureau of Labor and Statistics Occupational Outlook Handbook, opportunities for qualified individuals to fill entry-level and professional positions as members of the Armed Forces are very good as individuals move up through the ranks, leave the service, and or retire. Individuals who enlist in the service select from a variety of career fields. These fields are Accounting, Budget and Finance; Arts, Communications, Media and Design; Aviation; Business Administration and Operations; Combat Operations, Communications Equipment Technicians, Construction, Building and Extraction; Counseling, Social Work and Human Services, Education and Training; Engineering and Scientific Research, Environmental Health and Safety and Health Care Practitioners. Within each of these fields are a variety of positions for both enlisted personnel and officers.

Pay - Basic pay is based on rank and time in service. Students who complete a JROTC program will receive advanced rank and pay when enlisting in the service. This results in an increase of approximately \$2400 a year for entry-level enlisted personnel plus the advancement in rank:

- Entry-Level as an enlisted personnel....\$21,520 (E2-w/less than 2 yrs.)
- Mid-level as an enlisted personnel...\$38,563.20 (E-5 w/10 yrs.)
- Mid-level as a warrant officer... \$55,123.20 (W-2 w/10 yrs.)
- Midlevel as an officer...\$87,116.40 (O-5 w/10yrs)

In addition, enlisted personnel and officers receive free housing for an on base residence and a housing allowance for off base residence.

There are other benefits to the service such as education credit, and health coverage provided by the U.S. Veterans program.

GWB Priority Sector: Manufacturing

Career Field: Entry-level Manufacturing

Skills: Essential foundational skills needed for success in jobs across a variety of industries and occupations. Students must be able to successfully complete three assessments: Applied Mathematics, Locating Information, and Reading for Information.

Knowledge needed to be prepared for entry-level work: These measure a range of essential work skills, including the ability to:

- Perform basic mathematic operations relevant to the workplace;
- Read and understand documents commonly found in the workplace;
- Find information presented in common workplace graphics;
- Set up and solve complex work-related math problems;
- Determine the relevance of written information to work-related tasks;
- Apply information derived from graphics to work-related problems.

Required Curriculum:

Expected industry credential(s) or certificate(s) granted upon career and technical education program completion (if applicable): National Career Readiness Certificate (ACT NCRC). Students must successfully complete the three ACT WorkKeys assessments: Applied Mathematics, Locating Information, and Reading for Information. Student must achieve silver, gold or platinum score to demonstrate that they have the requisite baseline skills to enter workforce.

Entry-Level Education: High school diploma or equivalent

Prerequisites for acquiring credential or certificate: None

Benefits of this level of achievement in the job market: Manufacturing has opportunities for workers with a range of backgrounds. Some qualities and skills are often required. Workers also need a combination of education and training, which varies by occupation. For example, electrical and electronic equipment assemblers typically need a high school diploma or the equivalent plus on-the-job training of 1 month or less.

Job Outlook*: Employment of machinists and tool and die makers is projected to grow 6 percent from 2014 to 2024, about as fast as the average for all occupations. Workers familiar with computer software applications and who can perform multiple tasks in a machine shop will have the best job opportunities.

Pay:** The most recent Rhode Island Labor Market Information for this profession dates from May 2015 and the entry-level wage for Manufacturing at that time was \$35,048.00 (\$16.85 per hour).

* US Department of Labor; Bureau of Labor Statistics; Occupational Outlook Handbook

** RI Department of Labor & Training; Labor Market Information; Occupational Employment Statistics

GWB Priority Sector: Manufacturing

Career Field: Entry-level Manufacturing and above (Machinists and Tool & Die Makers)

Skills: Essential technical skills needed for success in jobs across a variety of advanced manufacturing occupations. Students need to demonstrate mastery of the core competencies of manufacturing production at the front-line (entry-level through front-line supervisor).

Knowledge needed to be prepared for entry-level work:

- Safety
- Quality Practices & Measurement
- Manufacturing Processes & Production
- Maintenance Awareness
- Green Production (optional)

Required Curriculum: The key activities for the four critical functions (as well as the Green certificate) are found on page 3.

Expected industry credential(s) or certificate(s) granted upon career and technical education program completion (if applicable): Manufacturing Standards Skills Council (MSSC) Certified Production Technician (CPT) program. Students must earn the first four certificates to receive the full CPT certification (Note: Green Production is not presently required for full-CPT). A student can earn a Certificate if they pass one or more assessments. However, they must pass all four assessments to earn the full CPT certification.

Entry-Level Education: High School diploma or equivalent

Prerequisites for acquiring credential or certificate: National Career Readiness Certificate (ACT NCRC); student must achieve at least a silver level score.

Benefits of this level of achievement in job market: The goal of the CPT certification program is to raise the level of performance of production workers both to assist the individuals in finding higher-wage jobs and to help employers ensure their workforce increases the company's productivity and competitiveness.

Job Outlook*: Employment of machinists and tool and die makers is projected to grow 6 percent from 2014 to 2024, about as fast as the average for all occupations. Workers familiar with computer software applications and who can perform multiple tasks in a machine shop will have the best job opportunities.

Pay:** The most recent Rhode Island Labor Market Information for this profession dates from May 2015 and the entry-level wage for Manufacturing entry-level and above was \$24,960.00 (\$12.00 per hour).

MSSC CRITICAL PRODUCTION FUNCTIONS

SAFETY

1. Work in a Safe and Productive Manufacturing Workplace
2. Perform safety and environmental inspections
3. Perform emergency drills and participate in emergency teams
4. Identify unsafe conditions and take corrective action
5. Provide safety orientation for all employees
6. Train personnel to use equipment safely

7. Suggest processes and procedures that support safety of work environment
8. Fulfill safety and health requirements for maintenance, installation, and repair
9. Monitor safe equipment and operator performance
10. Utilize effective, safety-enhancing workplace practices

QUALITY PRACTICES & MEASUREMENT

1. Participate in periodic internal quality audit activities
2. Check calibration of gages and other data collection equipment
3. Suggest continuous improvements
4. Inspect materials and product/process at all stages to ensure they meet specifications
5. Document the results of quality tests
6. Communicate quality problems.
7. Take corrective actions to restore or maintain quality
8. Record process outcomes and trends
9. Identify fundamentals of blueprint reading
10. Use common measurement systems and precision measurement tools

MANUFACTURING PROCESSES & PRODUCTION

1. Identify customer needs
2. Determine resources available for the production process
3. Set up equipment for the production process
4. Set team production goals
5. Make job assignments
6. Coordinate work flow with team members and other work groups
7. Communicate production and material requirements and product specifications
8. Perform and monitor the process to make the product
9. Document product and process compliance with customer requirements
10. Prepare final product for shipping or distribution

MSSC CRITICAL PRODUCTION FUNCTIONS

MAINTENANCE AWARENESS

1. Perform preventive maintenance and routine repair
2. Monitor indicators to ensure correct operations
3. Perform all housekeeping to maintain production schedule
4. Recognize potential maintenance issues with basic production systems, including knowledge of when to inform maintenance personnel about problems with:
 - Electrical systems
 - Pneumatic systems
 - Hydraulic systems
 - Machine automation systems
 - Lubrication processes
 - Bearings and couplings
 - Belts and chain drives

GREEN PRODUCTION (optional)

1. Train Workers in Environmental Issues
2. Implement & Promote Environmental Program, Projects, Policies or Procedures
3. Conduct Environmental Incident and Hazard Investigations
4. Conduct Preventive Environmental Inspections
5. Monitor Environmental Aspects at Each Stage of Production
6. Implement Continuous Improvement in Environmental Assurance
7. Using Advanced Material in Production to Reduce Waste
8. Reprocess Materials by Recycling and Reuse

* US Department of Labor; Bureau of Labor Statistics; Occupational Outlook Handbook

** RI Department of Labor & Training; Labor Market Information; Occupational Employment Statistics

GWB Priority Sector: Manufacturing

Career Field: Entry-level and above Production Manufacturing Specialist

Skills / knowledge needed to be prepared for entry-level work: Core industry-wide skills required for skilled production occupations in all sectors of advanced manufacturing. Students need to demonstrate competency in the following areas: (1) Math and Measurement, (2) Spatial Reasoning and Manufacturing Technology, and (3) Business Acumen and Quality.

Required Curriculum:

Expected industry credential(s) or certificate(s) granted upon career and technical education program completion (if applicable): Manufacturing Skills Institute (MSI) Manufacturing Technician 1 (MT1) certification. Students must earn the first four certificates to receive the full CPT certification (Note: Green Production is not presently required for full-CPT). A student can earn a Certificate if they pass one or more assessments. However, they must pass all four assessments to earn the full CPT certification.

Entry-Level Education: High school diploma or equivalent

Prerequisites for acquiring credential or certificate: National Career Readiness Certificate (ACT NCRC; student must achieve at least a silver level score) and Manufacturing Standards Skills Council (MSSC) Certified Production Technician (CPT) program certificates ('Green Production' not required).

Benefits of this level of achievement in job market:

The goal of the MT1 certification program is to:

- Develop a workforce pipeline capable of meeting the requirements of existing and emerging employers in advanced technology industries such as manufacturing
- Provide a customized fast track, pathway to stackable credentials for 21st Century advanced technology careers in industry
- Provide online and instructor-led training to address identified technical skill gaps
- Provide a pathway to advanced level training and specialized training based on industry requirements for potential new hires and incumbent workers.

Job Outlook*: Employment of machinists and tool and die makers is projected to grow 6 percent from 2014 to 2024, about as fast as the average for all occupations. Workers familiar with computer software applications and who can perform multiple tasks in a machine shop will have the best job opportunities.

Pay:** The most recent Rhode Island Labor Market Information for this profession dates from May 2015 and the entry-level wage for Manufacturing entry-level and above was \$35,048.00 (\$16.85 per hour).

* US Department of Labor; Bureau of Labor Statistics; Occupational Outlook Handbook

** RI Department of Labor & Training; Labor Market Information; Occupational Employment Statistics

GWB Priority Sector: Manufacturing

Career Field: Entry-level and above for any logistical function

Skills: Essential technical skills needed for success in jobs across a variety of advanced manufacturing occupations. Students demonstrate their understanding of the core skills and knowledge of logistics through two programs.

Knowledge needed to be prepared for entry-level work: The key activities for the two programs are attached.

Expected industry credential(s) or certificate(s) granted upon career and technical education program completion (if applicable): Manufacturing Standards Skills Council (MSSC) Certified Logistics Technician (CLT) program. Students must earn the foundational-level Certified Logistics Associate (CLA) Certificate and the mid-level technical CLT Certification. Before sitting for the CLT assessment, candidates must have a CLA Certificate.

Prerequisites for acquiring credential or certificate: National Career Readiness Certificate (ACT NCRC; student must achieve at least a silver level score) and Manufacturing Standards Skills Council (MSSC) Certified Production Technician (CPT) program certificates ('Green Production' not required).

Benefits of this level of achievement in job market: The goal of the CLT certification program is to raise the level of performance of logistics workers both to assist the individuals in finding higher-wage jobs and to help employers ensure their workforce increases the company's productivity and competitiveness.

Job Outlook*: The U.S. Department of Labor predicts employment to hold steady, with better trained workers receiving more opportunities.

Pay:** The most recent Rhode Island Labor Market Information for this profession dates from May 2015 and the entry-level wage for Certified Logistics Technician entry-level was \$28,038.00 (\$13.48 per hour).

* US Department of Labor; Bureau of Labor Statistics; Occupational Outlook Handbook

** RI Department of Labor & Training; Labor Market Information; Occupational Employment Statistics

MSSC LOGISTICS PROGRAMS

CERTIFIED LOGISTICS ASSOCIATE (CLA)

1. Global supply chain logistics life cycle
2. Logistics environment
3. Material handling equipment
4. Safety principles
5. Safe material handling and equipment operation
6. Quality control principles
7. Workplace communications
8. Teamwork and workplace behavior to solve problems
9. Using computers

CERTIFIED LOGISTICS TECHNICIAN (CLT)

1. Product receiving
2. Product storage
3. Order processing
4. Packaging and shipment

5. Inventory control
6. Safe handling of hazmat materials
7. Evaluation of transportation modes
8. Dispatch and tracking
9. Measurements and metric conversions

GWB Priority Sector: Manufacturing

Career Field: Entry-level and above in metalworking industry or function

Skills: Skills in the metalworking industry are validated through the National Institute for Metalworking Skills (NIMS) machining and metal-forming certifications. The certifications are earned through secondary, postsecondary, and work-based curricula that include both “hands-on” performance and theory tests. 52 NIMS credentials allow employers to hone their credentialing requirements and choose only those certifications that are applicable to the needs of the company.

Knowledge needed to be prepared for entry-level work:

- Measurement, Materials & Safety
- Job Planning, Benchwork & Layout
- Manual Milling Skills I
- Turning Operations: Turning Between Centers
- Turning Operations: Turning Chucking Skills
- Grinding Skills I
- Drill Press Skills I
- CNC Turning: Programming Setup & Operations
- CNC Milling: Programming Setup & Operations

Required Curriculum:

Expected industry credential(s) or certificate(s) granted upon career and technical education program completion (if applicable): National Institute for Metalworking Skills (NIMS) machining and metal-forming Machining Level I certification.

Entry-Level Education: High school diploma or equivalent

Prerequisites for acquiring credential or certificate: National Career Readiness Certificate (ACT NCRC; student must achieve at least a silver level score) and Manufacturing Standards Skills Council (MSSC) Certified Production Technician (CPT) program certificates ('Green Production' not required).

Benefits of this level of achievement in job market: With NIMS performance measures, the students know clearly what is expected of them whether it is for graduation, hiring or advancement. The NIMS credential clearly demonstrates that the credential holder met the industry benchmark for that competency. Metalworking companies use the credentials as a basis for recruiting, hiring, placement and promotion. The guesswork is removed from the human resource process. Companies can advertise for specific NIMS credentialed skills, preferring or requiring certain credentials.

Job Outlook*: Employment of machinists and tool and die makers is projected to grow 6 percent from 2014 to 2024, about as fast as the average for all occupations. Workers familiar with computer software applications and who can perform multiple tasks in a machine shop will have the best job opportunities.

Pay:** The most recent Rhode Island Labor Market Information for this profession dates from May 2015 and the entry-level wage for Manufacturing entry-level and above was \$35,048.00 (\$16.85 per hour).

* US Department of Labor; Bureau of Labor Statistics; Occupational Outlook Handbook

** RI Department of Labor & Training; Labor Market Information; Occupational Employment Statistics.

GWB Priority Sector: Marine Trades

Career Field: Boat Building

Skills/ knowledge needed to be prepared for entry-level work:

1. Orientation to the Marine Trades
2. OSHA 10 Safety (Maritime, Construction and/or General)
3. Basic Woodworking and mechanical skills
4. Boatbuilding terminology, materials and methods
5. Related industry math and boat plans and/or blueprint reading
6. Technology specific equipment and basic operational techniques
7. Quality control
8. Work-based learning opportunities
9. Human relations, collaboration and problem solving (see 21st Century Work-readiness Rubric)

Required Curriculum: The primary curriculum is American Boat and Yacht Council (ABYC) with integrated units from the NCCER Construction Technology. The three/four courses are: Marine Technology 1; Marine Technology 2; Marine Technology 3; and Marine Technology 4 (where applicable).

Expected industry credential (s) and/or certificate(s) granted upon successful completion of the program (if applicable): OSHA-10 (Maritime, Construction and/or General); Rhode Island Marine Trades Association (RIMTA) Certificate of Completion.

Benefits of this level of achievement in job market: Prepares student with entry-level skills to obtain employment in the boatbuilding industry.

Job Outlook: Using 2014 Marine Trades Skills Gap Study Data, the Rhode Island Marine Trades Association & their third-party consultant, Planning Decisions, defined “the Marine Trades” as encompassing 659 business establishments that employed 6000 people who earned \$268.9 million in wages in seven separate “industries.”

Pay: The median annual wage for a boat builder pay is \$37,440.00 (\$18.00 per hour)

GWB Priority Sector: Marine Trades

Career Field: Composites

Skills/ knowledge needed to be prepared for entry-level work:

1. Orientation to the Composite Applications & Processes
2. OSHA 10 Safety ((Maritime, Construction and/or General))
3. Composite terminology, materials and methods
4. Related industry math and blueprint reading
 - a. Strong analytical and problem-solving skills
5. Technology specific equipment and basic operational techniques
 - a. General skills with hand tools, such as grinders, jig saw, and sanders
6. Quality control
7. Work-based learning opportunities
8. Human relations, collaboration and problem solving (see 21st Century Work-readiness Rubric)
9. Strong organizational and time management skills

Required Curriculum: The primary curriculum is American Composite Manufacturers Association (ACMA). The instructor must hold the American Composite Manufacturers Association (ACMA) Certification. The three/four courses are: Marine Technology 1; Marine Technology 2; Marine Technology 3; and Marine Technology 4 (where applicable).

Expected industry credential (s) and/or certificate(s) granted upon successful completion of the program (if applicable): American Composite Manufacturers Association (ACMA) Certification - Certified Composites Technician (CCT); OSHA10 (Maritime, Construction and/or General); and RIMTA Certificate of Completion

Benefits of this level of achievement in job market: Prepares students with the skills to obtain employment as an entry-level Composite Technician.

Job Outlook: Composites Technician - Using 2014 Marine Trades Skills Gap Study Data, the Rhode Island Marine Trades Association & their third-party consultant, Planning Decisions, defined “the Marine Trades” as encompassing 659 business establishments that employed 6000 people who earned \$268.9 million in wages in seven separate “industries.”

Pay: The median annual wage for entry-level composite technicians is \$36,940.80 (\$17.76 per hour)

GWB Priority Sector: Marine Trades

Career Field: Systems

Skills/ knowledge needed to be prepared for entry-level work:

1. Orientation to onboard Electrical, plumbing and propulsion systems
2. OSHA 10 Safety (Maritime, Construction and/or General)
3. Systems terminology, materials and methods
4. Related industry math and schematics reading
5. Technology specific equipment and basic operational techniques
6. Quality control
7. Work-based learning opportunities
8. Human relations, collaboration and problem solving (see 21st Century Work-readiness Rubric)

Required curriculum: The primary curriculum is American Boat and Yacht Council (ABYC). The three/four courses are: Marine Technology 1; Marine Technology 2; Marine Technology 3; and Marine Technology 4 (where applicable).

Expected industry credential (s) and/or certificate(s) granted upon successful completion of the program (if applicable): OSHA-10; SkillsUSA Marine Service Technology Proficiency Assessment

Benefits of this level of achievement in job market: Prepares students with the skills to obtain employment as an entry-level Systems Technician in the Marine Technology trades.

Job Outlook: Using 2014 Marine Trades Skills Gap Study Data, e the Rhode Island Marine Trades Association & their third-party consultant, Planning Decisions, defined “the Marine Trades” as encompassing 659 business establishments that employed 6000 people who earned \$268.9 million in wages in seven separate “industries.” According to the US Bureau of Labor Statistics, employment of small engine mechanics is projected to grow 4 percent from 2014 to 2024.

Pay: The median annual wage for entry-level service technicians was \$35,280.00 (\$16.96 per hour) in May 2016.

GWB Priority Sector: Pre-Engineering Technology

(Governor's Workforce Board Priority – Defense)

Career Field: Technician

This standard is for a high school graduate who is both prepared to enter an engineering program at the post-secondary level and be “job ready” as a technician.

Skills/ knowledge needed to be prepared for entry-level work: Upon successful completion of a RIDE approved Pre Engineering pathway, the candidate is expected to know and be able to:

- Assist engineers or scientists in creative tasks such as aiding in product or tool design, setting up experiments, running experiments, recording data and observations, summarizing results, diagnosing flaws, conducting testing, conducting repairs, programming equipment, setting up production equipment and processes, designing tooling, assessing and controlling quality, etc.

Expected industry credential (s) and/or certificate(s) granted upon successful completion of the program (if applicable):

High school students interested in becoming a technician supporting engineers should take a standard pre-engineering curriculum of four years of math, plus chemistry, physics and three consecutive years of engineering technology coursework. As a supplement, students can enhance their skills with courses that help develop skills working with their hands, basic information technology (IT) courses, and courses in data analytics such as Microsoft Excel, and Microsoft Access.

These requirements are summarized in the following table

Each column must be met to satisfy the requirements of the Rhode Island CTE Pre Engineering Technology Standard

Minimum Academic Requirement		Safety		Mandatory Credential Earned (at least one)		Work based Experience
Three consecutive years of engineering technology coursework	+	Safety training content equivalent to OSHA 10 hour General Industry training	+	National Occupational Competency Testing Institute (NOCTI) Pre-Engineering	+	Engineering/industry work based learning experience and/or related mentor program
AND				International Society of Certified Electronics Technicians (ISCET) AC, DC, Semiconductor & Digital		
Four years of math, including at least pre-calculus				Electronic Technician Association AC, DC, Analog, Digital & Comprehensive		
AND				Project Lead the Way Three consecutive Project Lead The Way Course Certificates (including Intro to Engineering		
Chemistry & Physics						

			Design, and Principles of Engineering)		
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Job Outlook: Per the Rhode Island Department of Labor and Training Occupational Outlook 2024, demand for Architects and Engineers is expected to grow 7.7% over the ten-year period from 2014-2024; a greater rate than Rhode Island job growth overall during the same period (7.1%). Further, there are many other industries that benefit from people with engineering background and skills.

Technician openings are more difficult to measure; as of 2015, there were about three engineering technicians per 1,000 Rhode Island jobs (per US Department of Labor Statistics). Engineering technician job openings typically require an associate's degree and experience. Nonetheless, a high school graduate with these credentials will be very valuable to employers looking to recruit engineers. Such a high school graduate could work as a technician or intern while completing a four-year engineering degree.

Pay: Salary depends on the specific technician field entered. Salaries range from \$49,000 a year as a civil engineer technician to Aerospace technician making \$87,000 per year, with the average wage of \$56,000 per the US Department of Labor statistics.

USDOL Career Cluster: Transportation, Distribution and Logistics

(Not a RI Governor's Workforce Board Priority Sector)

Career Field: Automotive Body Repair Technician

Skills/ knowledge needed to be prepared for entry-level work:

- Review damage reports, prepare cost estimates, and plan work
- Inspect cars for structural damage
- Remove damaged body parts, including bumpers, fenders, hoods, grilles, and trim
- Realign car frames and chassis to repair structural damage
- Hammer out or patch dents, dimples, and other minor body damage
- Fit, attach, and weld replacement parts into place
- Sand, buff, and prime refurbished and repaired surfaces
- Apply new finish to restored body parts

Curriculum: I-CAR - Collision Repair Curriculum for Career and Technical Schools. The curriculum is aligned 376 NATEF standards. The curriculum is cross referenced to Common Core Reading and Math Competencies.

Expected industry credential (s) and/or certificate(s) granted upon successful completion of the program (if applicable): I-Car Level II.

Prerequisites for acquiring credential or certificate: Complete I-Car Level I and course work / professional develop for I-Car Level II.

Benefits of this level of achievement in job market: Automotive Body Repair Technician is employed by dealerships, service centers and automotive parts stores.

US Department Labor Statistics:

Job Outlook: Employment of automotive body and glass repairers is projected to grow 9 percent from 2014 to 2024, faster than the average for all occupations. Job opportunities should be very good for jobseekers with industry certification and formal training in automotive body and glass repair.

Pay: The median annual wage for automotive body repair technician was \$39,890.00 (\$19.18 per hour) in May 2014.

Similar Occupations: Compare the job duties for auto body repair with responsibilities of Automotive Service Technicians and Mechanics, Diesel Service Technicians, Glaziers, Heavy Vehicle Technicians and Painting and Coating Workers as reference for similar occupations.

USDOL Career Cluster: Transportation, Distribution and Logistics

(Not a RI Governor's Workforce Board Priority Sector)

Career Field: Lube Technician

Skills/ knowledge needed to be prepared for entry-level work:

1. Performs work as outlined on repair order with efficiency and accuracy, in accordance with dealership and factory standards.
2. Sells lubrication, safety inspection, and other related services.
3. Maintains records on regular customers, following up periodically with telephone, mail, or personal reminders.
4. Drains oil from crankcase and refills with required amount of oil. Replaces oil and air filters.
5. Inspects vehicle fluid levels, replaces or replenishes as necessary. Checks tire pressure and adds air if needed.
6. Lubricates moving parts with specified lubricants. Communicates with parts department to obtain needed parts. Documents all work performed on the repair order.
7. Keeps abreast of manufacturer technical bulletins.
8. Ensures that customers' cars are kept clean. Notifies service advisor immediately of anything that has happened to change the appearance or condition of the vehicle.
9. Understands, keeps abreast of, and complies with federal, state, and local regulations, such as hazardous waste disposal, OSHA Right-to-Know, etc.
10. Operates all tools and equipment in a safe manner. Reports any safety issues immediately to management.

Expected industry credential (s) and/or certificate(s) granted upon successful completion of the program (if applicable): N/A

Prerequisites for acquiring credential or certificate: N/A

Benefits of this level of achievement in job market: Many Lube Technicians build on their experience and go on to become ASE certified automotive service technicians.

Job Outlook - Employment of automotive service technicians, including Lube Technicians, is projected to grow 5 percent from 2014 to 2024, about as fast as the average for all occupations. In Rhode Island, close to 30% of automotive service technicians will be in need of replacement by 2022.

Pay - The median annual wage for lube technicians was \$20,924 (\$10.06 per hour) in May 2014.

USDOL Career Cluster: Transportation, Distribution and Logistics

(Not a RI Governor's Workforce Board Priority Sector)

Career Field: Porter (Sales/Service)

Skills / knowledge needed to be prepared for entry-level work:

The Porter is responsible for assisting in processing vehicles through the service and reconditioning departments, keeping the lot clean and orderly to enhance the marketing of these vehicles as well as to enhance the professional image to customers and the public. The Porter will also assist with the orderly processing of lease turn-ins.

Sales:

1. Assist in preparing vehicles for retail sale by processing vehicles through the service and reconditioning departments.
2. Insure that inventory is clean and properly displayed and aligned at all times.
3. Assist sales staff with the delivery process as needed, including, but not limited to, putting fuel in vehicles, parking vehicles in designated area, assisting with inspection process, checking on vehicle cleanliness, mileage, etc.
4. Park cars in assigned areas.
5. Will be required to attend 4-hour defensive driver training.
6. Exemplary driving record

Service:

1. Greeting customers arriving in service drive and direct them to the consultants.
2. Park cars in assigned areas.
3. Responsible for assisting service department by processing vehicles through the service and reconditioning departments.
4. Responsible for transporting cars and repair orders from write up area to shop.
5. Recording damage of inventory valuables.
6. Responsible for insuring that customer's cars are clean prior to delivery.
7. Responsible for installing floor mats and seat covers.
8. Bring cars from wash area to service parking.

Expected industry credential (s) and/or certificate(s) granted upon successful completion of the program (if applicable): N/A

Benefits of this level of achievement in job market:

Job Outlook - Employment of Vehicle Porters is projected to grow 12 percent from 2014 to 2024, faster than the average for all occupations.

Pay - The median annual wage for Vehicle Porters was \$22,880 (\$11.00 per hour) in May 2014.

USDOL Career Cluster: Transportation, Distribution and Logistics

(Not a RI Governor's Workforce Board Priority Sector)

Career Field: Shipping and Receiving Clerk

Skills/ knowledge needed to be prepared for entry-level work: The Shipping and Receiving Clerk verifies and keeps records on incoming and outgoing shipments and prepares items for shipment:

1. Count, weigh, or measure items in incoming and outgoing shipments to verify information against bills of lading, invoices, orders, and other records
2. Determine method of shipment, utilizing knowledge of shipping procedures, routes, and rates
3. Affix shipping labels on packed cartons, or stencil identifying shipping information on cartons, using stenciling equipment
4. Assemble wooden or cardboard containers, or select preassembled containers
5. Insert items into containers, using spacers, filters, and protective padding
6. Stamp, stencil, or glue identifying information and shipping instructions onto crates or containers
7. Post weights and shipping charges, and affix postage
8. Unpack and examine incoming shipments, reject damaged items, record shortages, and correspond with shipper to rectify damages and shortages
9. Ensure that outgoing shipping meet specifications
10. Maintain inventory of shipping materials and supplies
11. Operate tier-lift truck or use hand truck to move, convey, or hoist shipments from shipping-and-receiving platform to storage or work area
12. Direct others in preparing outgoing and receiving incoming shipments
13. Receive damaged or defective goods returned to establishment and be designated Returned Goods, Receiving Clerk
14. Receive unsold products returned by Parts Driver and put back into inventory
15. Valid Driver's license

(The successful candidate must demonstrate the ability to read and comprehend instructions and information. One year of experience in a dealership position. Further, an employee must be proficient with Reynolds and Reynolds, calculator, motor vehicle, and tier-lift and hand trucks. Ability to use mechanical tools such as crimpers, pliers, wrenches, and tape measure.)

Expected industry credential (s) and/or certificate(s) granted upon successful completion of the program (if applicable): N/A

Prerequisites for acquiring credential or certificate: Expanded internship supports s

Benefits of this level of achievement in job market:

Job Outlook - Employment of shipping and receiving clerks is projected to grow 3 percent from 2014 to 2024, lower than the average for all occupations, but with a high rate of replacement through 2024.

Pay - The median annual wage shipping and receiving clerks was \$32,350 (\$15.56 per hour) in May 2014.

USDOL Career Cluster: Transportation, Distribution and Logistics

(Not a RI Governor's Workforce Board Priority Sector)

Career Field: Automotive Service Technician

Skills/ knowledge needed to be prepared for entry-level work:

1. Perform work specified on the repair order with efficiency
2. Test-drive vehicles, and test components and systems, using diagnostic tools and special service equipment
3. Communicate directly with the Service Advisor so that customers can be informed if any additional service is needed. Providing an estimate of time needed for additional repairs
4. Identify problems, often by using computerized diagnostic equipment
5. Plan work procedures, using charts, technical manuals, and experience
6. Test parts and systems to ensure that they work properly
7. Follow checklists to ensure that all critical parts are examined
8. Perform basic care and maintenance, including changing oil, checking fluid levels, and rotating tires
9. Repair or replace worn parts, such as brake pads, wheel bearings, and sensors
10. Perform repairs to manufacturer and customer specifications
11. Explain automotive problems and repairs to clients
12. Keep shop area neat and clean and be able to account for all dealership-owned tools at all times.
13. Understand & follow federal, state and local regulations, such as those governing the disposal of hazardous wastes.

Expected industry credential (s) and/or certificate(s) granted upon successful completion of the program (if applicable): Rhode Island's Automotive Technology CTE programming aims to prepare students for certification through the Automotive Service Excellence (ASE) examinations.

Prerequisites for acquiring credential or certificate: As of September 2016: Rhode Island will be adopting the CDX curriculum. CDX is used internationally and approved by the National Automotive Technicians Education Foundation (NATEF) and closely aligned to the ASE standards and examination tasks.

Benefits of this level of achievement in job market: Automotive service technicians are employed by dealerships, service centers and automotive parts stores.

Job Outlook - Employment of automotive service technicians and mechanics is projected to grow 5 percent from 2014 to 2024, about as fast as the average for all occupations. In Rhode Island, close to 30% of automotive service technicians will be in need of replacement by 2022.

Pay - The median annual wage for automotive service technicians was \$37,856 (\$18.20 per hour) in May 2014.